

CTO

SPLIT DECISION:
SHOULD YOU
QUARANTINE YOUR
WEB DEVELOPERS?

PAGE 130

ENTERPRISE APP
INTEGRATION:
READY TO RUMBLE?

PAGE 82

E-PUBLISH OR
E-PERISH?
DIGITIZING THE
BOOK INDUSTRY

PAGE 114

The Magazine for Information Executives

Piyush Gupta,
President and CEO
of LiquidPrice.com

Sink or Swim

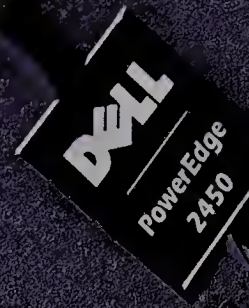
Shipping your key projects overseas can help
solve your staffing crunch—if you do it right

Here's how to stay afloat

PAGE 94



THE PERFECT
SERVER FOR A
COMPANY
WITH NO
ROOM FOR
ANOTHER SERVER.





Finally, a server that not only fits your company's needs, but also fits in your company. The Dell™ PowerEdge™ 2450, with its ultrathin 2U form factor, allows up to 21 servers and 42 processors in a 42U Dell rack. But don't let its size fool you. Like Dell's complete line of servers, it packs a lot of power. With dual Intel® Pentium® III processor capability at up to 933MHz and 133MHz Front Side Bus, the PowerEdge 2450 will give your company all the computing power (and elbowroom) it needs.

DELL™ SERVERS:

DELL™ POWEREDGE™ 1300

Affordable Entry Level Server

- Intel® Pentium® III Processor at 700MHz (up to 800MHz)
- Dual Processor/RAID Capable
- 64MB 100MHz ECC SDRAM (up to 1GB)
- 9GB⁵ 7200 RPM Ultra-2/LVD SCSI HD (up to 36GB⁵)
- 144GB Internal Storage Capacity
- NIC & Integrated SCSI Controllers; 48X Max CD-ROM
- Dell™ OpenManage™ Server Management Solutions
- 3-Yr NBD On-site Service³; 7x24 Phone Support

\$1399  **E-VALUE CODE 11193-290913**

BUSINESS LEASE: \$39/MO., 48 MOS.¹¹

- Small Business Upgrade Bundle, add \$1877
- 2nd Intel® Pentium® III Processor at 700MHz, add \$699

DELL™ POWEREDGE™ 2450

Ultra-Slim (2U) Rack-Optimized Server

- Intel® Pentium® III Processor at 733MHz (up to 933MHz)
- Dual Processor Capable
- 128MB 133MHz ECC SDRAM (up to 2GB)
- 9GB⁵ 10K RPM Ultra3 SCSI HD (up to 36GB⁵)
- Up to 180GB Hot-swappable Internal Storage Capacity
- Integrated NIC/SCSI Controllers; 24X Max CD-ROM
- Dell™ OpenManage™ Server Management Solutions
- 3-Yr NBD On-site Service³; 7x24 Phone Support

\$2939  **E-VALUE CODE 11193-290929**

BUSINESS LEASE: \$81/MO., 48 MOS.¹¹

- Single-channel RAID with 64MB Cache, add \$299
- MS® Windows® 2000 Server, add \$799

DELL™ POWEREDGE™ 2450

Ultra-Slim (2U) Rack-Optimized Server

- Intel® Pentium® III Processor at 733MHz (up to 933MHz)
- Dual Processor Capable
- 128MB 133MHz ECC SDRAM (up to 2GB)
- 9GB⁵ 10K RPM Ultra3 SCSI HD (up to 36GB⁵)
- Up to 180GB Hot-swappable Internal Storage Capacity
- Embedded Single-channel RAID with 64MB Cache
- Redundant Hot-swappable Power Supplies
- Integrated NIC/SCSI Controllers; 24X Max CD-ROM
- 3-Yr NBD On-site Service³; 7x24 Phone Support

\$3469  **E-VALUE CODE 11193-290934**

BUSINESS LEASE: \$96/MO., 48 MOS.¹¹

- Red Hat® Linux™ 6.2, add \$149 \$0

DELL™ POWEREDGE™ 4400

Departmental Server

- Intel® Pentium® III Xeon™ Processor at 800MHz (up to 933MHz)
- Dual Processor/RAID Capable
- 128MB 133MHz ECC SDRAM (up to 4GB)
- 9GB⁵ 7200 RPM Ultra3 SCSI HD (up to 73GB 10K RPM)
- Up to 510GB Hot-swappable Internal Storage Capacity
- Integrated NIC/SCSI Controllers; 40X Max CD-ROM
- Dell™ OpenManage™ Server Management Solutions
- 1-Yr DirectLine® Network Operating System Support
- 3-Yr NBD On-site Service³; 7x24 Phone Support

\$4639  **E-VALUE CODE 11193-290946**

BUSINESS LEASE: \$128/MO., 48 MOS.¹¹

- Dual-channel RAID with 64MB Cache, add \$899

DELL  COM™

USE THE E-VALUE CODE TO GET EXACTLY WHAT YOU WANT

800.348.8346

WWW.DELL.COM



VALUE

USE THE POWER OF THE E-VALUE CODE. Match our latest technology with our latest prices. Enter the E-VALUE code online or give it to your sales rep over the phone. www.dell.com/evaluate

Call: M-F 7a-9p | Sat 10a-6p | Sun 12p-5p CT | Canada: 800-839-0148 | Mexico: 001-877-269-3379 | GSA Contract #GS-35F-4076D

Prices, specifications, and availability may change without notice. Taxes and shipping charges extra, and vary. Cannot be combined with other offers or discounts. U.S. only. ⁴For a copy of our Guarantees or Limited Warranties, write Dell USA L.P., Attn: Warranties, One Dell Way, Round Rock, Texas 78682. ⁵Service may be provided by third party. Availability varies. Technician will be dispatched, if necessary, following phone-based troubleshooting. ⁶For hard drives, GB means 1 billion bytes; accessible capacity varies with operating environment. ⁷Business leasing arranged by Dell Financial Services L.P., an independent entity, to qualified customers. Lease payments based on 48-month 10% purchase option lease and do not include taxes, fees and shipping charges. Subject to credit approval and availability. Lease terms and pricing subject to change without notice. Intel, the Intel Inside logo, and Pentium are registered trademarks and Intel SpeedStep, Pentium III Xeon, and Celeron are trademarks of Intel Corporation. MS, Microsoft, BackOffice, IntelliMouse, Windows NT, and Windows are registered trademarks of Microsoft Corporation. ©2000 Dell Computer Corporation. All rights reserved.

• Focused on data from day one • Serving business customers only • #1 rated

CONFIDENCE

THUMBS-UP
FOR INTERMEDIA'S
QUALITY
& SERVICE!

FRAME

ATM

INTERNET

LOCAL/LONG DISTANCE

www.intermedia.com

Connect with

©2000 Intermedia Communications, Inc. All rights reserved. Intermedia Communications is a registered trademark and the Intermedia logo and Connect with Confidence are trademarks of Intermedia Communications, Inc. All other trademarks appearing herein are the property of their respective owners. Network reliability is based on internal network reports for Q1 and Q2 of 1999.

Internet backbone • Frame Relay/ATM network running at 99.999% reliability

D E N C E

boardwatch

#1 rated Internet backbone, *Boardwatch* magazine 1999

**Network
Computing**

#1 rated Managed Security, *Network Computing* magazine 1998

TeleChoice

#1 rated overall ISP *TeleChoice* survey 1999 and #1 in customer service 1998

X-Change

Pinnacle Award winner for service and innovation, *X-Change* and *Phone+* magazines

**Data
Communications**

Top 25 ISP, *Data Communications* magazine 1999 and 1998

**Forbes
ASAP**

"Dynamic100" Top Technology Company rankings, *Forbes ASAP* magazine 1999 and 1998

200

Top 100 Growth Company and "Hot Growth Company," *Network World* magazine 1999

Now that's *confidence*.

PHONE 800-250-2222

NASDAQ: ICIX

ConfidenceSM

are trademarks of Intermedia Communications, Inc.

intermediaTM
COMMUNICATIONS



The **agility** to perform in synchrony.

The **stability** to dominate when others are tossed by the currents.

Your business software can now be integrated and upgraded with the latest technology, and reside in an enterprise

www.agilera.com



Wide view on your desktop, tailored to job responsibility. Application hosting services from **Agilera**

Run with the swift. Stand with the strong.

Inside

VOL. 13 • NO. 23 • SEPTEMBER 15, 2000

Features

Damned If You Do... 82

ENTERPRISE APPLICATION INTEGRATION Will integration tools patch the holes left by an unsatisfactory ERP implementation? *By Lee Pender*

Hands Across the Waters 94

COVER STORY OUTSOURCING Offshore outsourcing is no longer an emerging trend—it's a way of life for many IT executives. But what makes the difference between sinking and swimming when you send key projects overseas? *By Tracy Mayor*

Flower Power 108

CASE FILES: E-BUSINESS MODELS To take on tough rivals, American Floral Services seizes the mantle of e-business evangelist to retail florists. *By James Barron*

The Next Chapter 114

INDUSTRY PROFILE: BOOK PUBLISHING Books aren't going away. But new technologies are sparking changes for a centuries-old industry—and pushing CIOs from the backlist to the spotlight. *By Tracy Mayor*

144



Roger Branch, former vice president of human resources at Management Recruiters International. 214

Amicable Split 130

WEB STRATEGIES Companies are dividing IS staffs to better compete in the Internet race. Their Web teams may be cool, but they better stay connected to their legacy pals. *By Susannah Patton*

Redtape.gov? 144

GOVERNMENT Governments are offering their services online, but will they truly streamline processes or will people end up waiting in line online? *By Heather Harreld*

MORE ►►►

Cover photo by Jay Blakesburg

Look Ma, No Server.

New ARCserve® 2000 Offers Serverless Backup And Restore Plus Hundreds Of Other Enhancements.

It couldn't have come at a better time. With eBusiness storage needs typically doubling every 18 months, and the growing demand for 100% uptime and availability of servers, IT administrators are facing ever-greater challenges.

New ARCserve 2000 is the answer. With serverless backup and restore, ARCserve 2000 represents a major breakthrough in data storage. With SAN, there are



many new industry-leading capabilities like shared tape libraries and high-speed data transfer.

ARCserve 2000 leverages industry standards for assured compatibility with high performance, ease-of-use, and unprecedented value. Just a few of the reasons why new ARCserve 2000 is the best storage solution for the eBusiness revolution.

Visit www.ca.com/arcserve for more information.

**COMPUTER
ASSOCIATES®**
Software superior by design.

New ARCserve® 2000



pentium®
PROCESSOR

Cruise the halls of freedom with abandon. You now have the license to do what you want, where you want, and when you

want. Because work is what you do, not who you are. And your rite of passage is the new Toshiba Portégé® 3480CT portable, with 600MHz of power unleashed by the Mobile



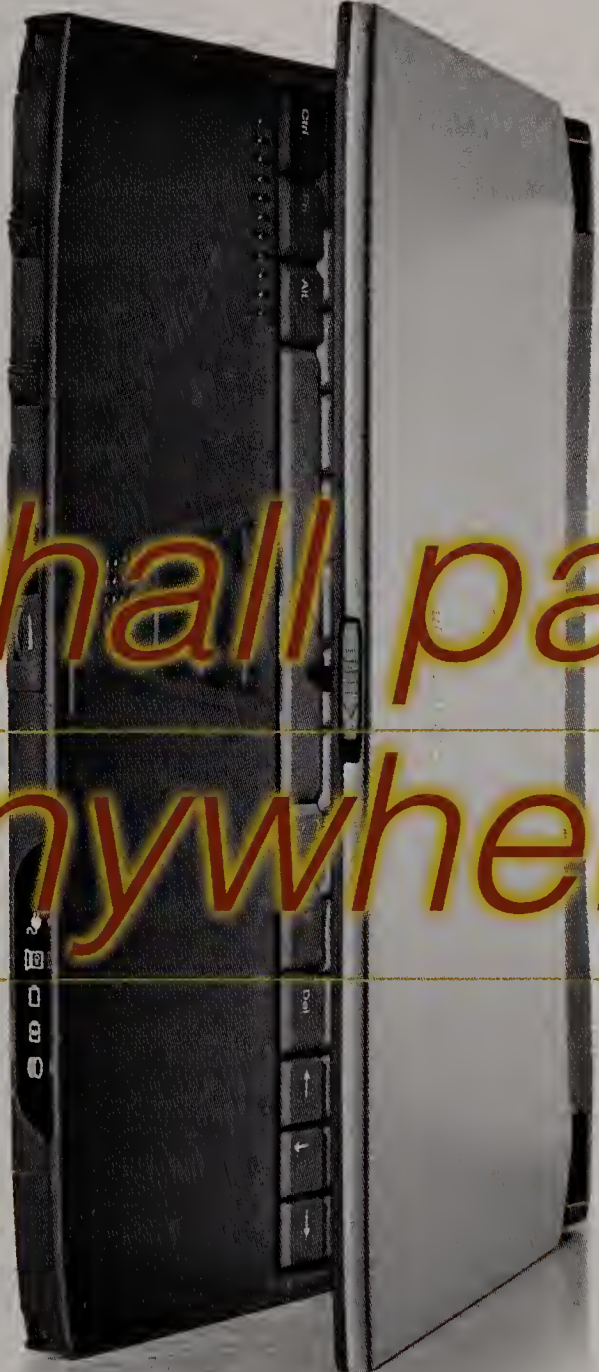
Toshiba recommends Microsoft® Windows® 2000 Professional for business.

© 2000 Toshiba America Information Systems, Inc. Portégé is a registered trademark and choose freedom is a trademark of Toshiba America Information Systems, Inc. Intel, the Intel Inside logo and Pentium are registered trademarks and Intel

Pentium® III processor featuring Intel® SpeedStep™ technology. Come and go with a newfound freedom that fits neatly within your hands. At 3.4 lbs. and less than 1" thin, this ultraportable

allows you to really move and shake. It's technology that allows you to leave the building. It's technology that sets you free.

Visit toshiba.com or call 1-800-TOSHIBA



*your hall pass to
anywhere*

choose freedom™

TOSHIBA

Inside

Features (CONTINUED)

The People Principle 156

INTERVIEW: ELECTRONIC INK An up-and-coming design firm has a radical notion: Technology should work for the user. *By Meg Mitchell*

Standing in the Middle 164

MIDMARKET I.T. Smaller companies demand more and more from IT—often without providing additional resources for getting the work done. But life in the mid-market isn't all pain. *By Derek Slater*

Crunch Time 174

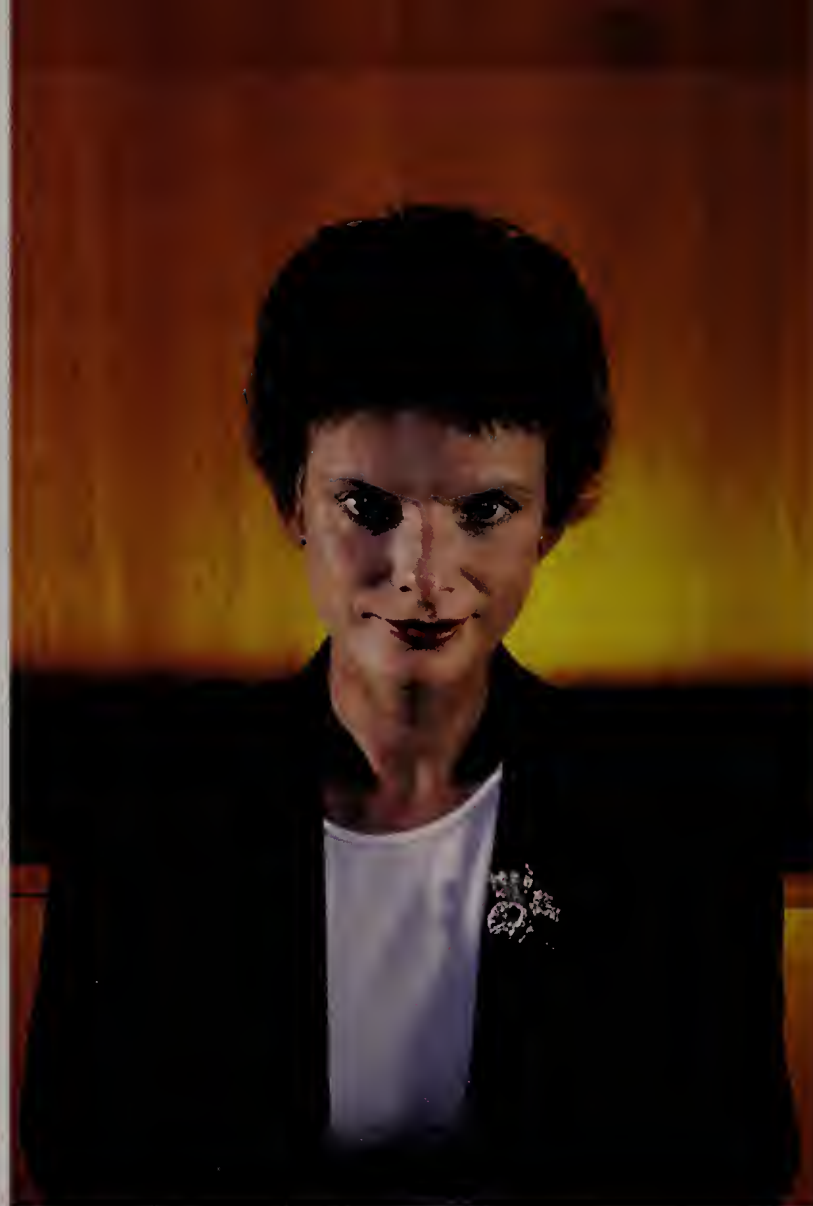
CUSTOMER RELATIONSHIP MANAGEMENT With a firm deadline staring it down, Mail Boxes Etc. is scrambling to get its CRM in place. *By Stewart Deck*

Fruit of the Vine 182

INDUSTRY PROFILE: WINERIES The wine industry's discerning use of homegrown IT systems has produced some bountiful results. *By Lauren Gibbons Paul*



204



Simon & Schuster CIO Anne Mander 114

Portal Potential 198

WEB BUSINESS Office-furniture giant Herman Miller uses an online portal to tighten its supplier relationships. *By Derek Slater*

We've Got Mail 204

E-MAIL POLICIES With clear guidelines, keeping tabs on e-mail may not alienate employees. That doesn't mean there aren't pitfalls. *By Karen D. Schwartz*

Up Close with Personnel 214

HUMAN RESOURCES 101 The economy is hot, hot, hot, but abundant staffing is not, not, not. Here's why HR, once relegated to the back room, is making its way into the boardroom—and what CIOs can do to help. *By Heather Baukney*

Star Makers 226

BOOK EXCERPT: HIDDEN VALUE Read how one company gets bravura performances from supporting players.

MORE ►►►



Arrival

Say hello to the future of

your data

VERITAS®, The Data Availability Company
with the products, services and innovation
that enable *business without interruption*.

Your growing company needs your data
to always be available.

Fortunately, there's VERITAS to protect
and access your business critical data.


VERITAS™
BUSINESS WITHOUT INTERRUPTION®

Visit us at www.veritas.com

© 2000 Veritas Software Corporation. All rights reserved. VERITAS, The Data Availability Company, and Business Without Interruption are trademarks of Veritas Software Corporation in the U.S. and other countries. The VERITAS logo and Business Without Interruption and VERITAS are registered trademarks of Veritas Software Corporation in the U.S. and other countries. All other trademarks are the property of their respective owners.



THERE'S NO SUBSTITUTE FOR AN EXPERIENCED PARTNER.

VOTE FOR BECKY



If you want to succeed, you need a proven expert behind you. It's true in politics and it's true in business. That's why industry giants like Dana Corporation, Motorola and Visa have chosen Ariba for their B2B solutions. In fact, our Ariba B2B Commerce Platform™ has helped launch more companies into the new economy than any other offering. Looking for some B2B advice? Give us a call at 800-535-3471 or visit www.ariba.com/partner.



ARIBA®

Making the net work for B2B™

Inside

Columns

Money for Nothing 58

NEW ECONOMY Why should you give online marketplaces a cut of your revenues just for attaching a few wires to your supply chain? That ain't workin'.

By M. Eric Johnson

Love Thy Workers 62

ASK THE EXPERT Everything you need to know about employee retention and conflict management.

Mind Your ASPs and Qs 68

FINE PRINT Key legal issues to consider when drafting Internet-based outsourcing contracts. By Barbara M. Melby and N. Jeffrey Klauder

A Fork in the Career Road 74

CAREER COUNSEL Mark Polansky offers advice to aspiring CIOs and IT managers.

Wire Report 288

TIME PIECE Copper wire
By Sara Shay



Opinion

Survivor 262

CIO CONFIDENTIAL Who needs "reality" TV when we've got office politics?
By Anonymous

E-Culture 268

RE: The secret of e-business success; Dual IT strategies

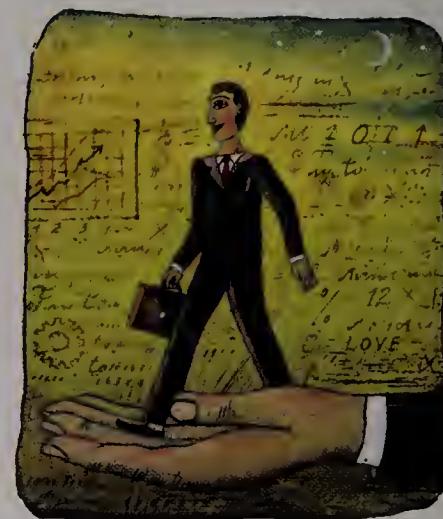
Computer Rage: Myth or Reality? 274

SOUND OFF Taking sides on critical IT issues. By Martha Heller

The Big Wait 278

FROM THE PUBLISHER
By Gary Beach

58



62

In Every Issue

From the Executive Editor 22

By Richard Pastore

InBox 26

Reader feedback

Trendlines 36

WASHINGTON WATCH

Just Say You're Snooping
By Elana Varon 40

OFF THE SHELF

Strategic Renaissance; Peak Performance; What They're Reading
Edited by Carol Zarrow 48

Emerging Technology 248

ASP-delivered productivity tools search for a market. By Matthew W. Beale and Christopher Lindquist

PREDICTIONS

Staffing 254

REVISIT

Wireless connectivity 256

UNDER DEVELOPMENT

Personalization 260

Board of Influence 282

ADVISERS When we don't know, this is who we ask.

Index 284

**ORACLE
OPEN
WORLD**

Moscone Center

October 1 - 6

SAN FRANCISCO

INSIGHT IS POWER

Join us at Oracle OpenWorld, the premier technology event featuring the most innovative e-business solutions. Choose from more than 400 in-depth technical, educational and hands-on sessions. Learn about the latest products and internet technologies, along with iPortal, Java and XML. Interact with over 300 of Oracle's most strategic partners offering complementary technology solutions. Register for Oracle OpenWorld today!

*Present this ad for **free admission** to the exhibit hall.*

Exhibit Dates: October 2 - 4, 2000

To register, call 1.888.933.4634 (US) or

1.972.349.7686 (Int'l) or visit

www.oracle.com/start/ and enter keyword **cio**

Keynotes by
industry visionaries



Larry Ellison
Chairman and CEO,
Oracle Corporation
*Software Powers
the Internet*



Mike Ruetters
CEO,
EMC
*Beyond
infrastructure*



Duane Zitzner
President,
Computing Systems,
Hewlett-Packard
*The Solution
Revolution*



Craig Barrett
President and CEO,
Intel Corporation
*Return On Information:
The New ROI for the
New Economy*



Scott McNealy
Chairman and CEO,
Sun Microsystems
*The Next Generation Net.
Always On. Always with You.*

Oracle OpenWorld is sponsored by Oracle Corporation in cooperation with:



©2000 Oracle Corporation. All rights reserved. Oracle and Oracle OpenWorld are registered trademarks of Oracle Corporation. All other names may be trademarks of their respective owners. Oracle OpenWorld is managed and operated by Oracle Corporation in cooperation with the International Oracle Users Group-Americas (IOUG-A).

ORACLE
SOFTWARE POWERS THE INTERNET™



©2000 Quantum Corporation. All rights reserved. Quantum and the Quantum logo are registered trademarks of Quantum Corporation. Registered in the U.S.A. and other countries.

For more information, call 1-800-624-5545 or visit www.quantum.com



Blue chip stocks



Manhattan real estate



18th century antiques



Pool boys' pager numbers

If it's important to you, save it with us.

Quantum[®]

Opinion Online

David Hume Offers Insight and Advice

ASK THE EXPERT Have a question about preventing IT burnout? David Hume, manager of permanent placement for St. Louis-based Bradford & Galt, will be available through Sept. 30.

www.cio.com/CIO/expert

Stewart Friedman on the Battle Between Work and Family

ASK THE AUTHOR Stewart Friedman, director of the Leadership Development Center at Ford Motor Co. and coauthor of *Work and Family—Allies or Enemies? What Happens When Business Confronts Life Choices*, is available to offer advice on your conflicts between work and family.

www2.cio.com/books/asktheauthor.cfm

Should You Take Your Best Staffers with You?

SOUND OFF You've been lured away by better pay and bigger challenges. All you need to succeed is a few of your former colleagues. Is it wrong to hire them away? See what readers said, and tell us what you think. comment.cio.com/sound.cfm?ID=54

And Don't Miss...

CIO Wanted

Wake up and grab your dream job. Check our senior-level IT professional job board. jobs.cio.com

Web Metrics

Sixty percent of midsize Web businesses—those that expect revenues between \$100,000 and \$1 million this year—are now profitable. For these and more numbers you can count on, visit Web Metrics.

www2.cio.com/webbusiness/metrics



Friedman



NEW THIS >> MONTH

CROSSING OVER

City magazines were hot stuff in the print world of the 1980s and 1990s. Is there a place for them on the Web? Read what the experts say.

webbusiness.cio.com/archive/062200_crossing.html

“I understand ethics and live by them in my business life. But if you don't take your employees with you when you go to a new job, someone else just might.”

—A reader response to a CIO Sound Off question: Should you take your best employees with you when you go? comment.cio.com/sound.cfm?ID=54



We set out to **create** an eLearning solution to help our customers.
We never expected the Computerworld Smithsonian Program to notice.

Our only goal was to help our customers. But we're proud that the Computerworld Smithsonian Program and industry leaders recognized LEAP™ for a Computerworld Smithsonian Award nomination. Through LEAP's technology, Ernst & Young's Intellinex delivers targeted online eLearning solutions. It's the kind of thinking every business needs to stay competitive in the new economy. Including companies like yours. So let's begin. ey.com/LEAP

 **ERNST & YOUNG**
FROM THOUGHT TO FINISH.™

**It's now standard practice
to depend on Web Applications.**



Now it's time for an industry standard to manage them.



Let's face it. You have to be on the leading edge of what has become known as e-business. But you cannot afford to lose sales, customers and brand reputation because of failed transactions. So your systems must be more than excellent. They must be failsafe.

Relax. Tonic has arrived.

Now you can feel comfortable about your company's dependence on web applications. Because the Tonic enterprise solution heralds a new era of web applications management.

Load testing and integrity assessment before going live. And on-going monitoring of systems beyond anything previously offered by a single company. That's Tonic.

Active within hours, not days. Easy to use with no retrofitting of your systems required. But with the scalability to simulate millions, not just thousands, of simultaneous users. After all, you plan to be that successful, right?

Suddenly the leading edge is a much more comfortable place to be.
www.tonic.com

TONICTM

Guaranteeing Your Net Works.TM

From the Executive Editor

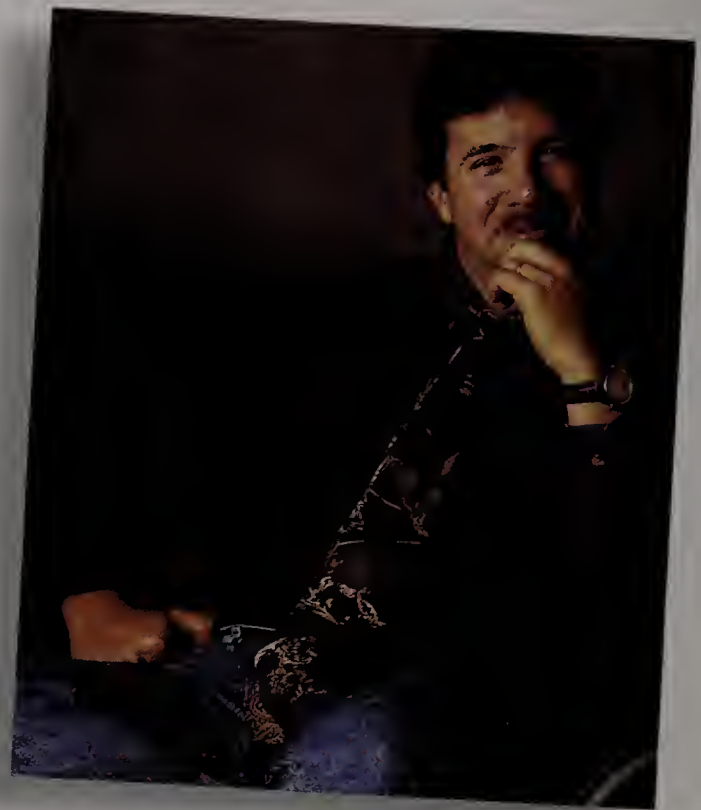
pastore@cio.com

All for One, One for All

"If you can get an organization to move faster by creating a separate [Web development] group, then you should do it," says Brian Farrar, chief operating officer at the Chicago consultancy Xpedior.

This pragmatic directive can be found in Senior Writer Susannah Patton's feature, "Amicable Split," on Page 130, in which happy companies such as Staples talk about how smart they were to segregate Web development from the established IT department by creating autonomous Web teams. How expedient. How new wave. How short-sighted.

I think this kind of approach will ultimately be harmful to organizations; it's a kick in the teeth for those IT professionals who joined these companies with the implicit agreement that they could develop their careers there; that they would work hard, do the grunt work and eventually move up to tackle leading-edge and exciting projects. Staples is proud that it transferred 30 people from legacy IT to join 65 newly hired, goatee-sporting Web developers ensconced in hip new offices painted yellow and outfitted with beanbag chairs and a foosball table. So the remaining separate-but-unequal 470 IT people are content to maintain back-office systems for the rest of their Staples careers? Did the Staples want ad in *The Boston Globe* promise them exciting, dynamic careers in legacy land? I doubt it.



At *CIO*, we faced a similar choice this year when we launched a new magazine, *Darwin* (www.darwinmag.com). Like you, we have a perpetual staffing shortage. Like you, we needed to get the product out in a hurry to keep pace with the competition. But our philosophy, framed by Editorial Director Lew McCreary, is to give our existing staff the chance to take on these challenges whenever they arise. We see these as built-in career-growth opportunities. So *Darwin* was launched by a group of volunteers from our core editorial staff, none of whom had experience creating a magazine from scratch. They did it right here in our boring, old, gray-and-mauve offices, surrounded by their colleagues. And the rest of the staff contributed indirectly by working harder to make up the man-power deficit, producing the largest *CIO* issues ever this past spring.

When *Darwin* debuted, on schedule, June 1, one of the first toasts at the launch party was to the editorial staff as a whole—we were proud we did it ourselves, together. Who will you toast at your Web launch party? The elite squad hired to develop the site in near isolation, the outsourcer paid to do all the creative work? Will you even invite the legacy IT group? If you do, don't be shocked if they don't show up.

Richard Pastore

PHOTO BY WEBB CHAPPELL



Rate your enterprise software investment.

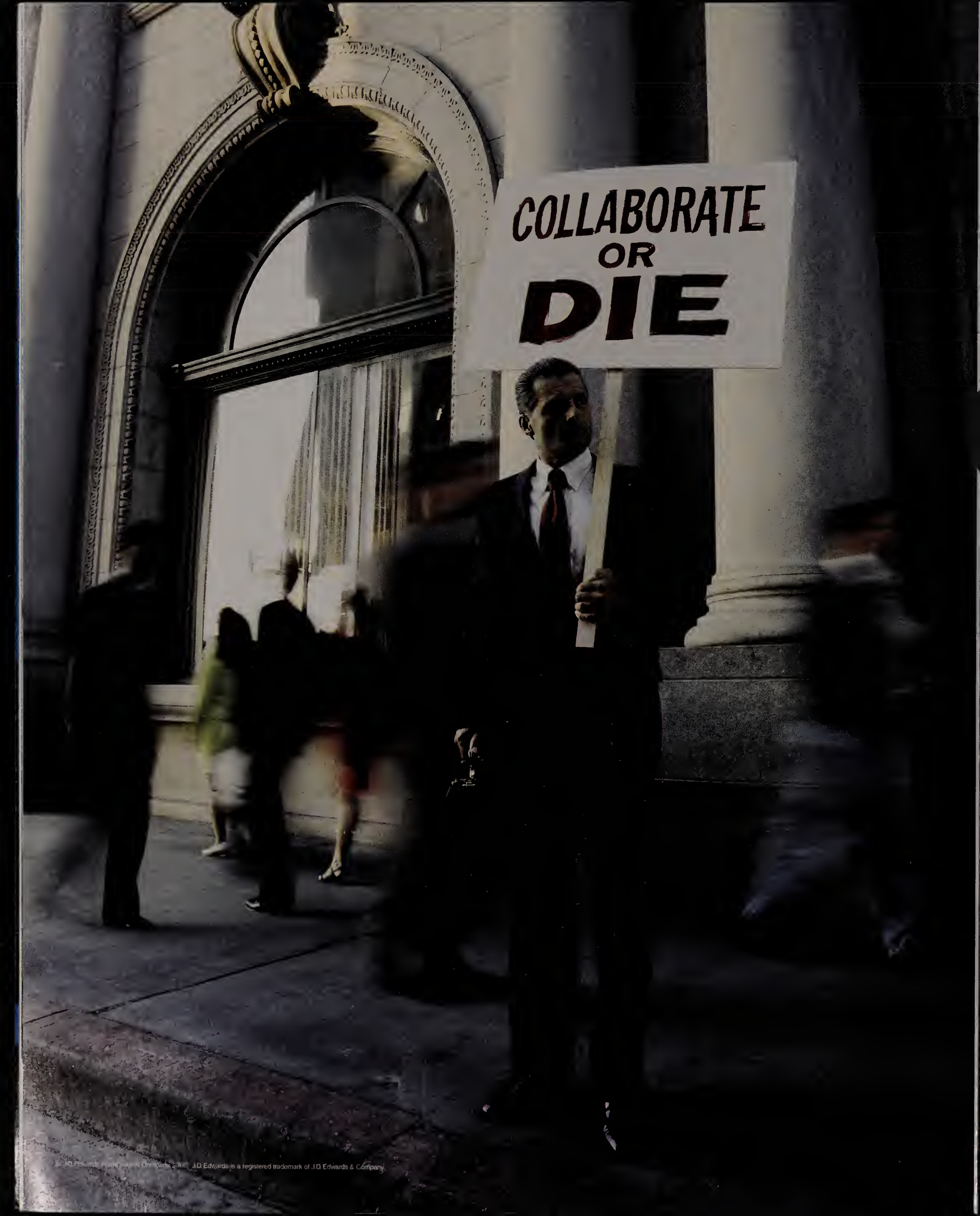
If the answer isn't 10, you need to find out about Hummingbird's platform independent software solutions. Visit www.hummingbird.com/scale3 or call 1-877-FLY-HUMM.

Hummingbird



Hummingbird™

Where the future of e-Business takes flight

A man in a dark suit and tie stands in the foreground, holding a large white sign. He is looking slightly to his right. The background features a grand, classical building with large columns and an arched entrance. Several other people are visible in the background, some blurred, suggesting movement. The lighting is dramatic, with strong shadows.

**COLLABORATE
OR
DIE**



J D E D W A R D S

APPOINT YOURSELF

▶ CHIEF

FREEDOM

OFFICER.

Let's talk about freedom to collaborate. That's what we stand for at J.D. Edwards. Here's how we can help: We offer software to automate your core business processes and extend them outside your enterprise. We do this by integrating a wide range of our own proven solutions, plus hot, new e-commerce applications from our growing lineup of software partners. So now, you can build a collaborative network that brings together any customer, any supplier and any partner. Regardless of which software they're running. You get a solution that's open to the future, open to partners and open to the genius of many software suppliers. We call it The Freedom to Choose. The Power to Share. It's what makes us the leader in agile, collaborative solutions for the Internet Economy. Interested? Visit us at www.jdedwards.com/freedom.

THE FREEDOM TO CHOOSE. THE POWER TO SHARE.

InBox

Reader Feedback

CUSTOMER SERVICE ADVOCATES

I agree with the points made in "Service with a Smirk" in the July 1, 2000, issue. I am in sales and always walk the extra mile for my customers. I do not hesitate to walk away from any deal where I feel I do not get the respect I deserve as a customer. I do mention my reasons to the business and I also write letters.

My most recent experience was with Sears and its service contract for home appliances. They increased the contract's cost by over 200 percent from last year to this year. I even called the marketing director in Chicago. Their response was, "Sorry, those are the numbers. Take it or leave it." So much for my loyalty. So I went to Service America and received two full years for the price Sears wanted to charge, and I received additional coverage on the items. To my surprise, Sears called me a month later concerned about the expiration of my contract. I advised the company (for the fifth time) about the issue and received the same response.

I am a strong advocate of customer service in everything. I am writing to www.complaints.com to let others know about my experiences. Everyone must scrutinize the level of service as part of the purchase: the intangible.

Hector I. Luciano • Senior Business Development Manager •
Dataforce Corp. • Miami • hluciano@hotmail.com

Companies that deliver poor service have not actually stopped thinking of the customer as an influence on future business. They are simply missing the point that almost all meaningful customer interactions take place at the front lines, on a person-to-person basis. They are choosing miracle devices such as CRM tools to save money and to mollify the thought that frontline caring about the customer is really a thing to be concerned about. After all, it is much less expensive to install some trendy software than it is to train and empower frontline employees to actually create a worthwhile experience for the customer.

If \$300 in service excellence training per employee can be sacrificed to a \$10 million CRM investment, for the 90,000-employee company that means a savings of \$17 million. A great ROI, if



only it worked! CRM technology is an extension of frontline excellence in customer service, not a replacement for it.

The backlash is already in motion. A significant percentage of consumers don't want a "relationship" where all their needs are second-guessed by some backroom computer. Known now as "transaction" rather than "relationship" oriented buyers, these customers are simply looking for truth, a smile and a thanks for their purchase. Then

they'll decide where to shop next based on that last experience.

As a marketing strategist, I envision the next tool for differentiation will be a return to the down-to-earth basics of service excellence and the commitment by companies to follow through on that promise. Imagine the national ad campaign of a major airline where the CEO discusses customer service while its frontline employees are randomly videotaped as they deal with customers. Those doing well are handed handsome rewards for excellent service, while those showing the "smirk" are fairly evaluated at their next performance review. Now that would bring some reality to the service desert we all are crossing.

I doubt we will return to the days when consumers everywhere will find the personalized service excellence they admire. Most consumers realize that the days when "everyone knows your name" are long past. But the enterprises that can treat customers with less hype, fewer smirks and more meaningful interactions will surely benefit from this service renaissance you have discussed.

William H. Thompson
President
The Thompson Group
Walnut Creek, Calif.
thomgrp@pobox.com

ERP'S TRUE VALUE

As a veteran of some six-plus ERP implementations (all with different software packages), I feel the comments in "ERP Training Stinks" [June 1, 2000] are valid. In my humble opinion, when

WHAT WE'VE DONE FOR **E-BUSINESS** IN BRAZIL

GIVES NEW MEANING TO THE TERM **HITS** □

We've helped Som Livre become Brazil's number one on-line music retailer. And it isn't just sambas Som Livre sells: This Web-based music mart offers on-line access to everything from rock to rap. Providing not only CDs from around the world via the Internet, but an on-line opportunity to let customers listen before they buy.

Unisys assisted Som Livre in creating its Web site. And got it up and running in, well, record time. We also developed a secure on-line transaction system to make every purchase safe and easy.

And because Som Livre is hosted on highly scalable **Unisys e@ction Enterprise Servers** running Microsoft® Windows®-based applications, the music store is always open. And will continue to be as more and more customers visit the site.

Which is why Som Livre says let the hits keep on coming. www.unisys.com



UNISYS

We eat, sleep and drink this stuff.

©2000 Unisys Corporation. Unisys is a registered trademark and e@ction is a trademark of Unisys Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation.

senior managers are presented with a training budget that includes what I call the "philosophy of system operation," they tend to view it as unnecessary and attempt to cut it from the implementation budget. (Why should purchasing agents understand the master production schedule or forecasting? Shouldn't

CIO and the corporate culture. IT was looked upon in a very different manner from what you describe regarding Y2K, simply because our culture could not and cannot tolerate massive legacy software application replacement projects. However, I have seen a dramatic shift in the corporate stance with

solutions, the function/reliability ratio is significantly more difficult to manage than it has been in the past. That is, there is much greater functionality but less reliability. A perfect example is the typewriter versus Microsoft Office. Office offers wonderful functionality, but it crashes regularly. We put up with this because the functionality gains far outweigh the comparatively poor reliability (compared with the lowly typewriter).

The same is true for current-day solutions—just ask any CIO who has either implemented ERP or integrated best-of-breed components into a coherent solution set. Our company has decided to integrate in-house, ASP-based, corporate information services to provide that functionality, which was unthinkable 10 years ago. However, managing to the service-level objectives of our company has become one of the two major focuses of the IT function (the other being integration of solution components into the enterprise suite of IT services).

Rather than diminish the importance of the IT function, this new reality has actually thrust IT into the forefront of every business strategy we are undertaking. In all my conversations with other CIOs, I have found our experience to be consistent with theirs.

What differs is how our companies view the functionality/reliability ratio. This reality is far more complex than the buzzword-laden, hype-riddled stuff of your coverage.

Brian Kilcourse
Senior Vice President & CIO
Longs Drug Stores
Walnut Creek, Calif.

Enterprises that treat customers with fewer smirks will surely benefit.

they just read their expedite reports and follow them?)

An ERP system is nothing more than a communication tool. It communicates a reiterative, detailed, tactical action plan to all the individuals in a business so that those individuals can function as a cohesive team. If team members understand how and where the information displayed in front of them is developed, they can make intelligent decisions on the proper action to take at the appropriate (lowest) organizational levels. Understanding the philosophy of software interaction that powers ERP gives system users the knowledge to challenge a system-directed action plan that doesn't make business sense. This is the true value of ERP.

Dave Foxworth
Manager of Information Systems
Quality Park Products
St. Paul, Minn.
dfoxworth@mwenu.com

I.S. ISN'T DEAD, JUST MORE FUN

I read "Can IS Come Back from the Brink" [June 15, 2000] with a great deal of interest. I believe traditional IS has been dead for five years.

Your comments regarding the CEO/CIO disconnect in the accompanying sidebar are absolutely right on, depending on the fit between the CEO and

respect to the value of enterprise resource planning (ERP) systems since I installed my first (and probably last) one here.

CIOs should have been "leading" and "being free" some time ago. Charles Popper of Orama Partners got it right: Who cares who runs the batch processes at night, handles telecommunications issues, backs up the system, or provides programming and analysis services, as long as the work gets done.

CIOs will be spending a lot more time defining why we are going to employ a certain technology and methodology to attack a business problem, as opposed to how. It's going to be even more fun than it was. That's what real leadership is all about.

Steven A. Steinbrecher
CIO
County of Contra Costa
Department of Information Technology
Martinez, Calif.
sstei@doit.co.contra-costa.ca.us

In your article about the demise of IT organizations, you conveniently skip over the issue that regardless of the ownership of the physical assets, the IT group is responsible to the remainder of the organization for service-level objectives.

Owing in great part to the order-of-magnitude complexity of networked

WHAT DO YOU THINK?

Send your thoughts and feedback to letters@cio.com. Letters may be edited for length or clarity.



For all the
you're not in business for,

SAP and all SAP product and service names herein are registered or unregistered trademarks of SAP AG. Other product and company names herein are trademarks of their respective owners. ©2000 eOnline, Inc.

We are.

eOnline is in the business of making your business run more smoothly. We do this by taking on your IT challenges, freeing up your company's time and resources. And by managing and hosting these applications all for one monthly fee. Guaranteed. This means you get to concentrate on the business you're in. While we concentrate on the rest.

"When we looked at eOnline, especially compared to other potential hosting partners, eOnline came to the top of the list." - Michael Beller, CIO, TechSmart.com



The ASP For Market Leaders

www.eOnlineinc.com



THE MARKETING CHIEF THINKS HE JUST RECEIVED A *PRANK* CALL.

"Is your server running?" asks the caller.

It's not a prank. It's a customer calling.

She can't access an e-marketplace Web site.

It seems the Web host provider isn't providing.

Maybe it's traffic. A power outage. Locusts.

Who knows? All the customer knows is that

she has \$400K in chemicals she needs to

sell and she's locked out. *Persona. Non. Grata.*

The other line rings. Another ticked customer?

"Hello, is your refrigerator running?"

This time it is a prank.

THAT'S WHEN IT HITS YOU. YOU ARE *SO READY* FOR

IBM



>> fact

50% of dot-coms and 40% of trading networks all have problems with uptime. A Web site hosted by IBM e-business hosting can provide 24/7 uptime, unmatched performance and unparalleled security. All on systems that are backed up, firewalled and constantly monitored. On the Web, you're only as good as your infrastructure.

1 800 426 7777 ask for Hosting

ibm.com/e-business/infrastructure

@business infrastructure



The Magazine for Information Executives

President & CEO Joseph L. Levy

Publisher Gary J. Beach

Editorial Director Lew McCreary

EDITORIAL

Editor in Chief Abbie Lundberg

Senior Executive Editor Richard Pastore

Managing Editor David Rosenbaum

Managing Editor, Production Cheryl R. Asselin

Executive Editors Christopher Koch (Investigations), Derek Slater

Columns Editor Katherine Noyes **Departments Editor** Sandy Kendall **Opinion Editor** Megan Santosus **Special Projects Editor** Mindy Blodgett **Technology Editor** Chris Lindquist

Senior Editors Alison Bass, Cheryl Bentsen, Tom Field, Michael Goldberg, Edward Prewitt (Management)

Features Editors Lafe Low, Sara Shay, Tom Wailgum (Associate)

Senior Writers Eric Berkman, Angela Genusa, Meg Mitchell, Susannah Patton, Lee Pender, Elana Varon

Staff Writers Stewart Deck, Meridith Levinson, Sarah D. Scalet, Ben Worthen

Copy Editors Kelli Botta (Associate), Kathleen S. Carr, Emily S. Henderson, Sarah Johnson (Associate)

Research Manager Lynne Z. Rigolini

Senior Researcher Carol Zarrow

Editorial Assistants Lauren Capotosto, Joe Sullivan, Stephanie Viscasillas

Contributing Editor Daintry Duffy

Contributors James Barron, Heather Baukney, Heather Harreld, M. Eric Johnson, N. Jeffrey Klauder, Tracy Mayor, Barbara M. Melby, Lauren Gibbons Paul, Karen D. Schwartz, Rod Travers, Matt Villano

Editorial Operations Coordinator Karen J. Zirpola

Editorial Intern Karen Witham Lynch

DESIGN

Executive Director, Art and Design Mary Lester

Art Director Lisa Munroe

Associate Art Director Hana Barker

Graphic Designers Susan W. Gilday, Andrea Healy, Robin B. Macleod, Terri Mitchell, Maria Cristina Villa

Associate Graphic Designers Kaajal S. Asher, Chandra Tallman

Contributing Designers Owen Edwards, Leslie Anne Feagley

WEBSITE

Senior VP/General Manager, Online Tim Horgan

Web Editorial Director Art Jahnke

Senior Web Editor Martha Heller

Web Writers Danielle Dunne, Emelie Rutherford, Jon Surmacz

Web Operations Manager Dagmar Eiben

Senior Web Developer Ellen Morey

Web Research Editor Kathleen Kotwica

Web Producer Holly Cury

Vendor Program Manager Andy Burrell

Assoc. Web Developer Shannon Macdonald

Web Engineer Kelly Kimball

Web Interns Diane Chen, Julie Lavallee, Alexa Storey Mukherju, Karalee Serra

CIRCULATION

Senior VP/Circulation Carol A. Spach

Circulation Manager Susan Woodworth

Subscription Svcs. Manager Denise Perreault

Subscription Svcs. Supervisor Tina Pescaro

Circulation Assistant Lisa Byron

PRODUCTION

Director of Production Resa Altsher

Production Associate Lee Tuttle

Ad Production Coordinator Lisa Stevenson

Ad Operations Coordinator Rodrick Miriyoga

EXECUTIVE PROGRAMS

Executive VP Lynda Rosenthal

Executive Assistant Susan Weidman

Director, Marketing Services Shellie Rapson James

Director, Event Development Michele Zarella

Manager, Program Operations Brian Fuce

Manager, Ancillary Products Bill Kerber

Manager, Procurement/Tech. Planning Cynthia Laird

Manager, Program Development Sherry Keyles

Manager, Client Services Jeremy E. Draper

Administrator, Program Planning & Finance Sandra J. Hughey

Program Applications Specialist Heather Beauton

Associate Program Applications Specialist Leah Silver

Program Marketing Specialist Karen Peabody

Assoc. Program Marketing Specialist Deanna Burke

Operations Coordinator Michael Barbato

Fulfillment Services Coordinator Andrea Harney

Manager, Event Planning Amy Sanderson

Event Planning Specialist Rachel Sherman

MARKETING

Executive VP/Marketing Cathy O'Leary Hayes

VP/News and Information Susan Watson

Media Relations Manager Karen Fogerty

News and Information Specialist Julie Hanson

News and Information Assistant Lori Piscatelli

Research Director Bridget Cammarata

Senior Marketing Research Analyst Carolyn Johnson

Marketing Research Analyst Denise Kane

Marketing Comm. Manager Nicole Glinski Curtin

Sr. MarCom Development Specialist Kari Noah

Marketing Comm. Specialist Dot Caspersen

Marketing Comm. Intern Sarah Crowley

ADMINISTRATION

Executive VP/Operations Walter Manninen

Assistant to the Publisher Diane Martin

Financial Manager Margarita Chiango

Jr. Financial Analyst Hilary Kushinsky

Billing Administrator Joyce Gillis

Facilities Specialist John Kelley

Office Services Assistant Mary E. Wooldridge

INFORMATION SYSTEMS

VP/CIO David Woodall

Manager, Network Services James C. Burgoyne

User Services Manager Ron Bettencourt

Senior User Services Specialist Michael Fahlsing

System Administrator Robert Reagan

IS Intern Ben Gonzales

How to Reach Us

E-mail letters@cio.com

Phone 508 872-0080

Fax 508 879-7784

Address CIO Magazine, CXO Media Inc.,
492 Old Connecticut Path, P.O. Box 9208,
Framingham, MA 01701-9208

Website www.cio.com

Subscriber Services 800 788-4605

Fax 508 879-7899

E-mail denisep@cio.com

Reprints Reprints are available by calling RMS
at 717 399-1900, ext. 131, or via e-mail at
jeffm@rmsreprints.com.



President & CEO Kelly Conlin

Board Chairman Patrick J. McGovern



© CXO Media Inc.

The New Look of Outsourcing

E-quipped to enable the online business revolution, today's "netsourcing" bears little resemblance to the outsourcing of old

WITH THE DOT-COM EXPLOSION *and the Fortune 1000 clamor to re-engineer for Web-enabled applications, it's clear that the Internet plays a starring role in doing business today. While leveraging the benefits of the Internet is on the mind of every corporate executive, what remains in question is the best way to get to that end game. E-business can put a company on the road to sizable rewards, but the path can be fraught with peril unless the underlying technology is robust enough to handle the unique demands of e-commerce.*

Powering up for e-business is no small undertaking. Yet you don't have to be Einstein to know *why* you've got to be there. Corporate e-business applications are quickly moving from drawing board to online reality, however, that's only half the battle.

Once these applications are developed and rolled out, you come face-to-face with the enigma of many an otherwise-decisive CIO: how to provide the predictable service and performance required to ensure your successful foray into the world of e-business.

Doing business online magnifies all the issues that have come to be synonymous with the high-

pressure territory of distributed IT enterprises—availability, scalability, recoverability, security and all the rest. Problem is, the complexity of these critical management spheres escalates exponentially in an e-business world.

Keeping the Net Generation Happy

After all, it's a given that an electronic storefront will be open for business 24x7x365. That virtual "*always open*" sign is a big part of the Internet's ubiquitous appeal. Online customers—whether B2C or B2B users—are an impatient lot: make them wait too long or come back later and you may never see them—or their buying power—again.



It's a brutal reality of the online culture that a customer can easily "shop" elsewhere with just the click of a mouse. Loyalty be damned. Face it: People do business online for the immediacy, and e-business is a strong purveyor of instant gratification.

No doubt that maximum uptime is a must. Then factor in the potential for huge variances in customer demand. The need to combine maximum uptime with industrial-strength scalability could easily cause a dormant ulcer to flare up. Especially considering that most companies can't ramp up the management systems and the number of skilled staff to control the nuances and complexities of Internet-enabled business.

The Moment of Truth Arrives

So you've built your online applications and you're ready to go live. Or are you? Can your e-business infrastructure really do the job, all day, every day, regardless of unpredictable demand? According to IDC's 1999 Technology Integration Panel Study of North American Businesses, over

options for harnessing and leveraging the power of the Internet. Not only do they want to move e-business applications into production as rapidly as possible, they want optimum

assistance with the arduous task of going from business to e-business. Lumped generally under the term "outsourcing," these companies can step in and take charge of some or all of your IT and network infrastructure needs.

By focusing on its business specialty—managing the infrastructure which underlies its clients' applications—an outsourcer can free a company's in-house staff to stay focused on core business issues and bottom-line goals. Done right, outsourcing delivers improved application uptime that translates to revenue growth and greater customer loyalty and retention—all for a controlled, predictable fee.

Smoke and Mirrors

But beware: not all outsourcing is created equal. Many first-generation hosting providers offer a

piecemeal infrastructure comprised of technology components that can't keep pace with the demands of e-business. Typically, their customers are left with the burdens of not merely application development, but also integration, implementation and equipment provisioning.

"We wanted a well-oiled machine, not a bunch of nuts and bolts," says a CIO from a leading Fortune 1000

COSTLY AND COMPLEX, the technology infrastructure that supports your e-business can make—or break—your e-business. Building out an enterprise-class IT/network infrastructure in house,

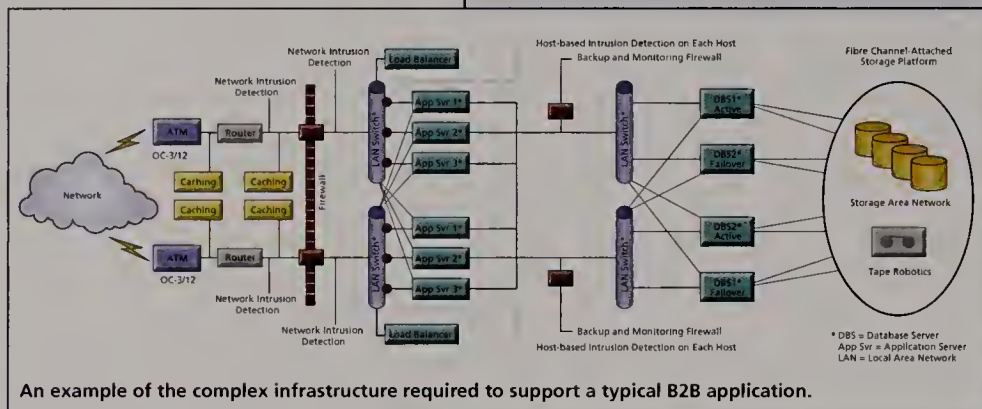
hiring the necessary technical skill sets, and providing 24x7 operational support is a huge undertaking—one that can't be taken lightly when supporting mission-critical

e-business applications. Netsourcing is a viable and cost-effective solution that accelerates time-to-market and delivers a complete, reliable solution for mission-critical e-business applications.

service and performance once the applications are rolled out.

Beating the Resource Crunch

This paradigm of the New Economy is stretching IT budgets and staff resources like never before, with the e-business model encompassing the complete spectrum of infrastructure components—servers, networking, storage, performance management,



70 percent of network or systems downtime is caused by factors other than application failure.

If that weren't sobering enough, all indications are that the problem is getting worse. Why? Because most internal IS teams either don't possess the right skill sets to work in such a new environment or are already undermanned and unable to retain qualified staff in a limited talent pool.

"High profile e-failures," notes the Yankee Group analyst Chris Selland, "have proven that it is not enough to build an e-business—ongoing success is

"High profile e-failures have proven that it is not enough to build an e-business—ongoing success is highly dependent on a company's ability to provide sustained performance."

highly dependent on a company's ability to provide sustained performance. Success with the e-business model will go to those able to appropriately scale and support an e-business infrastructure over the long term."

With time-to-market being a huge part of the e-business equation, Global 1000 corporations and dot-coms alike want new-and-improved

security and much more. Building and managing the scope and complexity of this kind of enterprise-scale infrastructure is something that few IT organizations have the capital, time or expertise to completely handle.

Fortunately, there are alternatives to the do-it-yourself approach. A wide range of service providers of different types and capabilities offer

company. "We wanted someone who could take care of everything below the application layer."

He's not the only IT executive who feels that way. Ricky Aaron is CEO of myspace, a leading online information management company. "We were looking for a provider who had the proven ability to support a fast-growing and high functionality

site, as well as a commitment to provide solid, reliable, scalable services we could build our business on for years to come," says Aaron.

A New Option: Netsourcing

With its technical complexity and performance challenges, the bold new frontier of e-business is leaving first-generation hosting squarely in its rearview mirror. In its place is a growing demand for a new breed of e-business infrastructure outsourcing called "netsourcing," which is obtained through a single-source

emerging as a supercharged alternative to first-generation hosting for a number of reasons. Chief among them is customers gain the ability to obtain all the services listed previously from a single provider. Another key difference is the ability to achieve sustained performance and operational support for applications that demand the highest levels of availability and scalability.

These two characteristics make netsourcing a particularly sound match for customers and applications with high-end, high-availability requirements that go well beyond what many

ny's e-business infrastructure. One of netsourcing's biggest value-adds is that it delivers services that are truly "application ready"—providing a total turnkey approach to e-business infrastructure. This differs dramatically from a first-generation hosting provider who may provide co-location services that call for a client to supply its own fully configured server that will be placed in a secured data center cage. In contrast, a netsourcer is likely to provide the servers, the storage systems, security and network management platform designed into the custom-built,

"Netsourcing is more than hardware. It's actually supporting your customer relationships. Your customer relationships come down to availability of your application, and that comes down to the netsourcing provider. Intira's not only hosting our back-office, they are hosting our customers."

service provider who operates, controls and manages the entire infrastructure—both IT systems and the network.

The netsourcing model is designed to proactively maintain business continuity by avoiding failure and by providing a single point of accountability. Netsourcing focuses on providing a complete infrastructure for Web-based e-commerce and other next-generation applications by combining:

- Network services
- Complex, mission-critical hosting
- System software and hardware provisioning
- Infrastructure integration and support services
- Business continuity services

"Netsourcers," says Selland of the Yankee Group, which coined the term, "provide a single-source, highly available, scalable, high-performance platform for hosted business, commerce and multimedia applications."

The Netsourcing Advantage

This is definitely not your father's idea of outsourcing. Probably not even your older brother's. Netsourcing is

network and hosting providers can offer. Netsourcing adds significant value beyond merely hosting an application, because it provides all of the requisite network and IT infrastructure services, the full range of skilled technical resources, and management systems necessary to keep that application running and available at maximum service levels.

Netsourcing providers assume a much greater percentage of a compa-

fully managed infrastructure solution.

Because of their extensive investments in IT and network technology and professional expertise, netsourcers can significantly shorten a company's time-to-market for e-business applications. Typically, companies who use netsourcing can expect to save two to four calendar months when deploying their e-business applications and can plan to be up and running in 30 days.

TRAPEZO'S PARTNER FUSION PLATFORM, a comprehensive, Web-based merchandising and content management service that integrates and automates the entire e-business partnering process end-to-end for faster, more efficient and profitable online partnering, is critical to their success.



Trapezo recognized that a robust IT and network infrastructure was essential for running its mission-critical business-to-business application. With limited resources and a commitment to outsource non-core operations, Trapezo chose not to build the required infrastructure in-house, but to outsource it.

Trapezo researched the alternatives and chose a netsourcing solution from Intira Corporation which delivered the complete solution Trapezo was looking for — one provider that could power its Web-partnering application service with a world-class integrated IT and network infrastructure managed and monitored around the clock, skilled in-house technical expertise, robust services, guaranteed application availability and scalability to support growth.

Intira Corporation: Enabling e-business with a foundation you can count on

Intira recognizes that your application is your business, not the complex IT/network infrastructure and operations that support the application. That's why our Netsourcing solutions have been built and engineered from the ground up to exclusively support mission-critical e-business applications with the highest levels of application availability.

Intira Netsourcing Solutions combine all the IT and network elements your e-business applications require to deliver successfully time after time—an integrated, world-class IT and network infrastructure; highly automated, secure operations and management systems; a broad set of highly skilled technical resources; and a full range of robust, value-added services. And, because Intira has direct and immediate control of the entire infrastructure your applications reside on, only Intira can offer a comprehensive SLA guaranteeing application availability up to 99.95 percent, and provide you with a single point of accountability for the entire Netsourcing solution.

At Intira, we're driven to be more than just the industry's leading Netsourcing provider. We want to be a full-fledged partner in your success. That's why our Netsourcing solutions are designed to accelerate your time-to-market, reduce costly staffing and technology investments, and enable you to focus on building your core business.

With Intira, you'll get more—far more—than what traditional, first-generation network, hosting, or co-location providers can offer. You'll get a solid e-business foundation you can count on today and far into the future.

**For more information about Intira's
Netsourcing Solutions, please visit our
Web site: www.intira.com
or call 1-888-350-6290.**



©2000 Intira Corporation. All rights reserved.

"Netsourcing is more than hardware," states Randy Wilcox, CEO and president of SingleSourceIT, a Web-based information technology supply chain management solution that serves the Global 2000 in a market estimated at \$160 billion, "it's actually supporting your customer relationships. Your customer relationships come down to the availability of your application, and that comes down to the netsourcing provider. Intira's not only hosting our back-office, they are hosting our customers."

Single Source Accountability

Because they take control and operational ownership of all IT and network infrastructure and provide comprehensive integration and support services, single-source netsourcers have the ability to offer a monumentally important benefit: service levels.

Vendors with partial or alliance-based offerings or those that broker a set of providers into a single solution simply can't achieve this.

When applications are truly business-critical, it is imperative that companies insist upon a comprehensive service level agreement (SLA) backed up with always-accessible Web-based reporting tools to measure infrastructure availability and assure SLA compliance. Today, only a few leading netsourcers can deliver this kind of agreement, but its value to an e-business is virtually priceless.

Like outsourcing, however, not all SLAs are created equal either. If an infrastructure service provider doesn't own the entire infrastructure, they are relegated to offering numerous SLAs covering individual infrastructure components. Only a single, comprehensive SLA that looks at the infra-

structure as a whole can guarantee all-important application availability. This is especially important in the high-stakes realm of e-business.

One company that saw this firsthand is Trapezo, a Web-based partnering service for e-businesses and their content partners.

"We searched for one, focused, comprehensive provider for our infrastructure needs—one who could offer SLAs ensuring up to 99.95 percent application uptime, and 24x7 proactive monitoring and management of the outsourced infrastructure solution," recalls Satyen V. Kothari, Trapezo's CEO, president and co-founder. "Intira met all the criteria for us."

Buying Peace of Mind

Intira has quickly captured a leadership position in the netsourcing market because of its demonstrated ability to deliver on the full promise of single-source netsourcing. Intira provides a turnkey solution for e-business applications that includes a seamlessly integrated, highly automated and completely secure technology infrastructure—fully managed and operated up to the application layer—that guarantees uptime and provides a single point of accountability.

The profit potential of Internet-driven applications is immense. However, with the heightened complexity of e-business comes the risk of underestimating the infrastructure and support effort it will take to actually cash in on e-business. No one wants to be the next prominently publicized e-failure.

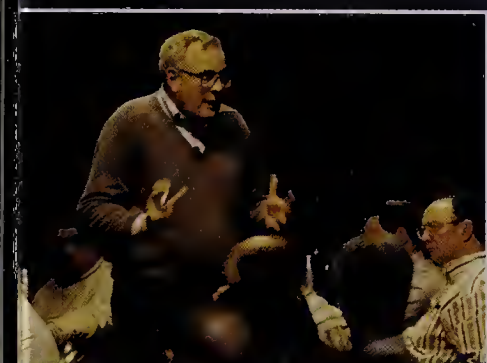
Developing and managing the applications themselves is tricky enough. To tip the scales in your favor, it may be wise to take a new look at your infrastructure outsourcing options. Today's next-generation netsourcers offer high-end services to ensure the availability of high-end, high-value applications. Netsourcing is emerging as the ultimate weapon for achieving strategic market advantage with your e-business applications. •



The Ninth Annual

Enterprise Value Retreat & Awards Ceremony

January 28-31, 2001 • The Westin La Paloma • Tucson, Arizona



Harvard Business School

Professor F. Warren McFarlan

vigorously leads participants

through case studies to demon-

strate IT's payoff and highlight

technology's strategic enterprise

value. The featured case study is

global trading house, Li & Fung.

Meet the Enterprise Value Award

winners and become part of this

community of learning.



Enterprise Value Awards
proudly underwritten by

GENUITY

To enroll or for more information, call 800-355-0246,
or visit our Web site at www.cio.com/conferences

trendlines

the **NEW** the **HOT** the **UNEXPECTED**

Edited by Sandy Kendall

INNOVATION

It's Your Movie!

By Eric Berkman

IF YOU'RE BORED with predictable Hollywood blockbuster fare like *Armageddon*, *Twister* and *Con-Air*, there may be an alternative besides hard-to-find art-house chic. On www.itsyourmovie.com, you can see *Running Time*, a film that just wrapped in August, billed by its producers as the "world's first interactive movie."

In what sounds like a cross between German indie flick *Run Lola Run* and a choose-your-own-adventure novel, *Running Time* involves a sexy London bicycle courier searching for her ecoterrorist brother, who has been using his computer skills to attack a genetically modified food company. During the film's three-month production, the producers posted a five-minute episode to the Web each Thursday, and viewers voted on the outcome. On Mondays, they gathered the votes, and their team of four writers, led by Simon Beaufoy, the screenwriter for *The Full Monty*, penned a new episode based on audience response. Then they scouted locations, filmed the next episode, posted it and the next cycle began.

"It's the world's first interactive movie in the sense that we react to what the audience suggests," says Interactive Motion Picture CEO and producer Simon Rose, a former film critic for *The Mirror*, a popular London tabloid. "There have been others that call themselves interactive, but they're all pre-planned, with every possible ending written and filmed in advance."

Visitors to the website can get up-to-date by watching all the previous episodes and visiting an area called the Boardroom, which features clues on what's happening

Department of **BIG, Scary Numbers**

7 MILLION: number of new pages added to the Internet each day **23 MILLION:** number of small businesses in the United States, representing 99 percent of all employers and 53 percent of the workforce Source: **Estats 2.1 TRILLION:** world spending in the information and communications technology (ICT) industry in 1999 **3 TRILLION:** expected ICT spending for 2003 Source: World Information Technology and Services Alliance in cooperation with IDC **6 TRILLION:** projected value of U.S. business-to-business Internet trade in 2005 Source: Jupiter Communications

in the central story. You can also listen to songs from the soundtrack, which features edgy, up-and-coming bands from the London scene. Right now there's no charge to take part in *Running Time*. Rose says his primary aim at this point is to generate publicity for partnerships with Internet portals—like Yahoo, Excite and America Online—interested in obtaining exciting content to drive people through their gateways. "All of these people want to prove that broadband is the future," he says.

Continued on Page 38





Somebody's going to profit
from all this e-commerce data.
Will it be you?

Boom! Just when you thought that your company's information systems couldn't get any more complicated, along comes the e-commerce revolution. And, with it, an explosion of new data about online customers and supply chains. As the world leader in data warehousing and e-Intelligence, SAS transforms this data into the knowledge you need. To optimize customer and supplier relationships. To reveal unseen opportunities for cross-selling and enhancing customer loyalty. Ultimately, making your e-commerce operation an e-profit machine. For more details on e-Intelligence solutions from SAS, call 1-800-727-0025 or stop by www.sas.com.

The Power to Know™



It's Your Movie!

Continued from Page 36

"The only way to watch fantastic video images is in the broadband context, and in order to do that, they have to prove there's something to show people. We're in the business of producing content they'll hopefully want to showcase."

At press time, the next movie in the works is a romantic comedy that Rose promises will be "even more interactive." Meanwhile, he predicts that in a few months' time people will view interactive motion pictures as yet another genre. "The Web's greatest asset is interactivity," he says. "Marrying it with entertainment has to be a very exciting way forward."

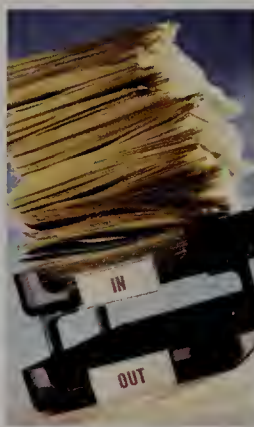
CONSULTING

Keeping Up with Yourself

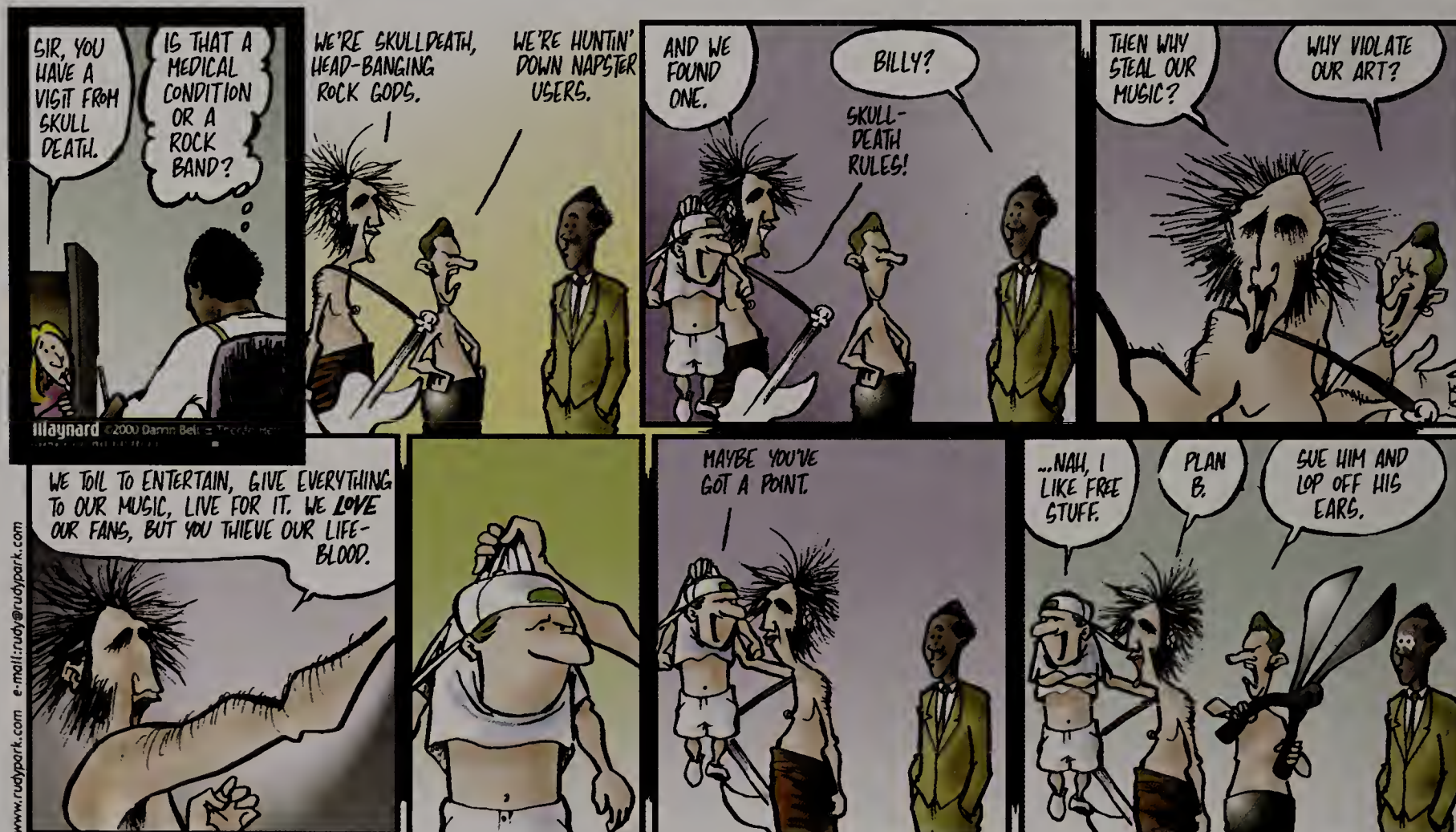
Dell Computer recently announced that it will begin offering its much-celebrated electronic commerce know-how as a consulting service (through its new consulting partners Arthur Andersen and Gen3 Partners), an original move for a PC manufacturer. But ironically, behind its slick, automated website, paper still rules at Dell—and probably most anywhere else you look. Dell staffers often take orders that come into the website, print them out and retype the information into the company's order fulfillment systems. At a recent conference, Dave Allen, Dell's vice president of worldwide operations,

said just 10 percent of Dell's orders are "frictionless," meaning that they go from the website to fulfillment electronically. (When contacted for verification, a Dell representative said the rate is actually higher, adding that "for competitive reasons, we don't discuss details of our Internet sales, beyond that they exceed \$40 million per day and account for nearly 50 percent of our total revenue.") Some of the friction comes from differing data standards and customized systems across Dell's worldwide operations. But most troublesome are Dell's own fulfillment and manufacturing processes, which change so quickly because of the company's rapid growth that keeping pace is difficult, Allen says.

—Christopher Koch



Maynard BY DARRIN BELL AND THERON HEIR

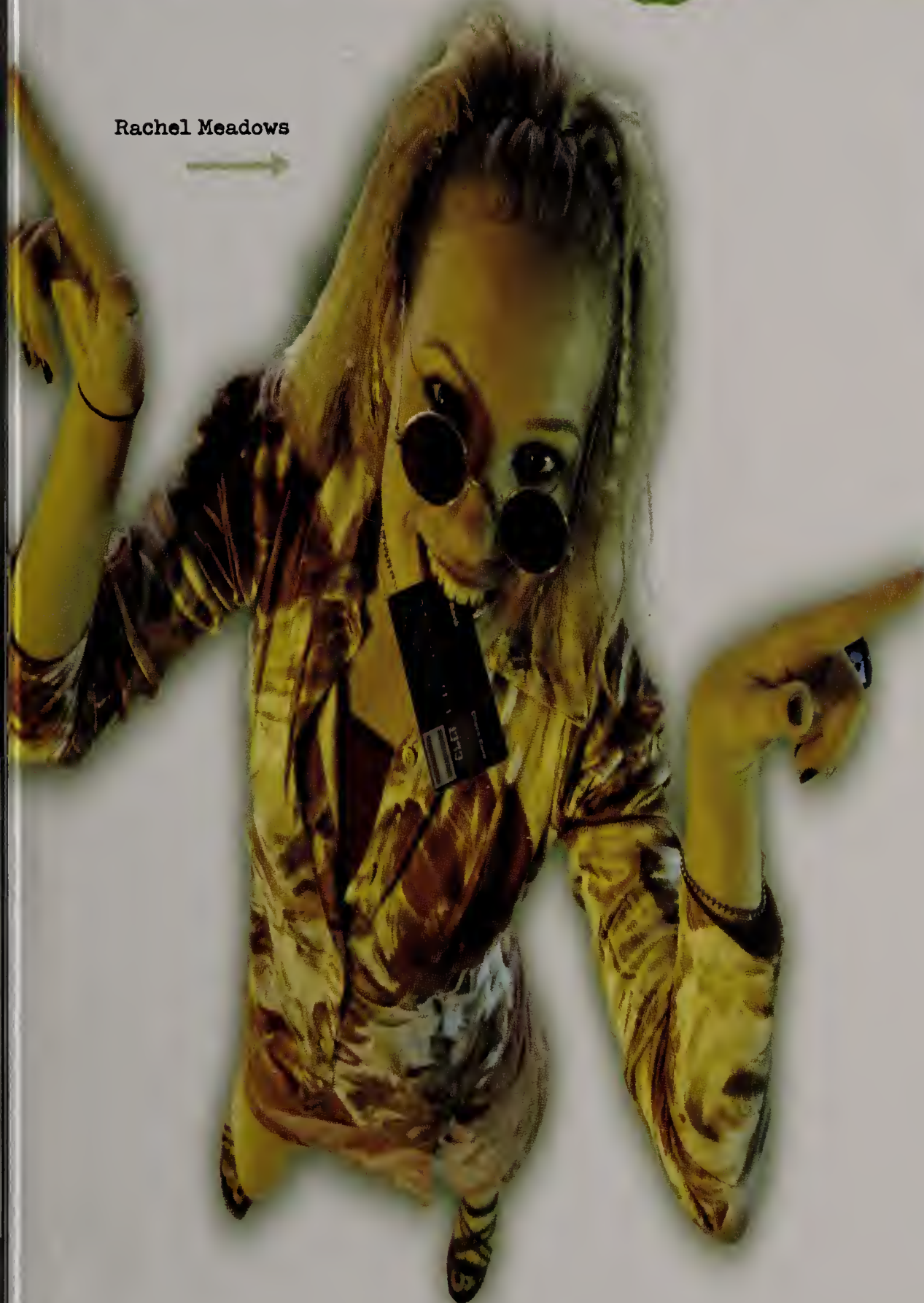


Only One

Millions of Customers

Rachel Meadows

Rachel Meadows



Name	Rachel Meadows
Occupation	Web Designer
Head of Household	Yes
Age of Householder	27
Household Income	\$53,000
Home Owner	No
Current Services	Checking Account Savings Account Student Loan Car Loan Credit Card
Credit Rating	820
Usage Profile	On-Line Banking Account Above-average ATM usage Direct Deposit Electronic payment of Student Loan, Car Loan, Utilities 8 payments remaining on Student Loan 21 payments remaining on Car Loan
Projected Lifetime Customer Value	\$423,000

Dynamic Customers deserve Dynamic Relationships

Deliver dynamic relationships with a dynamic application - on time and on budget. Chordiant is a fast, flexible application that manages and drives complex customer relationships in an integrated multi-channel environment, including the Web! Call us at 1.888.CHORDIANT.

Because Rachel is
worth knowing!

www.chordiant.com

One Click. One Call. One Customer.



Chordiant
SOFTWARE, INC.

Washington Watch

By Elana Varon

Just Say You're Snooping

It's no secret anymore that most companies snoop on their employees—except, perhaps, to the employees. That's the premise behind a bill introduced on July 20 in the Senate by **Sen. Charles Schumer** (D-N.Y.), and in the House by **Reps. Charles Canady** (R-Fla.) and **Bob Barr** (R-Ga.) that would let workers sue if they weren't told the boss might be reading their e-mail.

The Notice of Electronic Monitoring Act would require employers to remind workers annually that they are sifting through e-mail, tracking Web usage or otherwise spying on how office computers are used (an exception would be if the company suspects criminal activity). If a company failed to comply and an employee took it to court, the damage could run as high as \$500,000.



Charles Schumer

Gregory Nojeim, legislative counsel with the American Civil Liberties Union, says the bill simply protects workers who might not otherwise think twice about sending that "mushy love note" to their spouses. "There have been a number of accounts in the media of employees who have been fired after their e-mail usage was monitored, so obviously some employees are surprised," he says.

But **Michael Lotito**, a lawyer with the San Francisco office of Jackson Lewis Schnitzler & Krupman, sees only nuisance lawsuits from fired employees who are

looking for one more way to stick it to the boss. It's cheaper to settle these cases than to drag them out in court, he adds. Lotito, who chairs the Society for Human Resource Management's board of directors, thinks companies should be up front about how they monitor workers. While some companies may be laggards, they're catching up, he says. "If we were back in the early 1900s, we would be talking about this relative to the telephone."



Bob Barr

While—if the news is any guide—plenty of people apparently lack the common sense not to surf porn sites or pass trade secrets at work, it's hard to find data on just how unaware employees really are about online eavesdropping.

In a survey released earlier this year, the American Management Association (AMA) found that on average, 88 percent of companies that monitor employees online tell workers they're doing it, but the AMA didn't look into whether the message was getting through.

Because anything can happen in the waning days of a congressional session (this one is due to end in about three weeks), it's hard to say whether this bill will be going anywhere right away. But it's still another line in the emerging blueprint for individual privacy protections online. For more on the subject, see "We've Got Mail," Page 204.

Information Age Voting, Sort Of

YOU'RE GOING TO VOTE, RIGHT?

Maybe in four years you'll be able to do it online, but for now, you still have to trek to some dank school gymnasium. Or, if you happen to know that you'll be out of town that day, you can vote absentee—and you can order your absentee ballot online, at least.

Several Web portals, including iVillage.com, MilitaryHub.com and MSN's HomeAdvisor are offering voter registration and absentee ballot request services by Election.com, the company that gave voters an online option in the Arizona Democratic primary last March. Mark Strama, Election.com's vice president for government affairs, says he wants to sign up companies to license both services on their intranets.

Since election laws have not quite caught up with the Internet, the service is somewhat primitive—voters go online to fill out the relevant form, which is then printed and mailed to them to be signed and mailed again to their local election office. But that still beats remembering to call city hall and asking someone to mail you the paperwork.

Got news or views on what's happening with IT policy in Washington? E-mail washington@cio.com.

"My staff was able to use [the] Internet to manufacture convincing IDs that would allow me to pass as a member of our Armed Forces...or as a licensed driver in Florida, Michigan and Wyoming."

—Sen. Susan Collins (Rep. Maine) introducing the Internet False Identification Prevention Act





Just do the math.

**See how Kyocera Mita's network printers
will save you a ton over time.**

With diamond-hard long-life drum technology, all Kyocera Mita plug-and-play network printers give you a total cost of printing that averages less than a penny a page with crisp, clear resolution. That looks pretty good compared to other network printers that have operating costs two to three times higher.

The cost difference can save printer users thousands over the life of the printer. It's a great way to turn your paper storage area into a profit center.

So call us at 1-877-289-MITA and we'll crunch some numbers together.
You'll love the way they sound.



www.kyoceramita.com

© 2000 Kyocera Mita America, Inc.



14 ppm



18 ppm



28 ppm



36 ppm



IS THIS HOW YOU IMAGINE THE WEB?SM

Pile on as much as you like. You're leveraging the Internet, after all. And with it, you can satisfy the biggest appetites for success.

You're hungry for online success. You want to bring your company's business to the Web faster, more efficiently, and more successfully than anyone ever thought possible. You can, with Allaire.TM Our software platform – everything from application servers and visual tools, to packaged applications for e-commerce, content management, and personalization – is designed to help you build your business on the Web.

It's powerful, productive, and easily integrates with just about every existing database and system in your enterprise. Which means you'll feed the demand for all large-scale enterprise and e-commerce applications.

It's from Allaire, and it's the best way to satisfy your company's appetite for online success.

<allaire>

www.allaire.com

1 888 939 2545

Help Wanted

KEVIN MITNICK—the infamous computer hacker who's out on a strictly supervised parole after 54 months in the slammer—can't use or possess a computer, cell phone or any device with an Internet connection. (See "Pro and Con," *CIO*, June 1, 2000.) For a while it looked like he couldn't even be a columnist for a website, give lectures or get hired as a consultant for any computer-related matter, but his probation officer has loosened up and allowed him to be a media critic for the website Contentville (www.contentville.com). But that got us thinking. Those of us tethered to technology have a hard time imagining what anyone could do without using a computer, since these days even flipping burgers involves some form of gadgetry (the time clock, the cash register, the intercom at the drive-thru window...). So if Mitnick bombs as a writer, how could he pay the bills for the rest of his three-year parole? Our staff came up with a few ideas.

1 TV star. Mitnick could get a spot on one of the endless parade of shows like *1900 House* where he'd spend his days making lye soap, or *Survivor*, where his techie background would suit him for the professor-from-*Gilligan's Island* role.

2 Innkeeper. We hear that Ted Kaczynski's cabin is for sale. Mitnick could buy it and run a B&B for Luddites.

3 Food service. The local grocery store seeks qualified individuals to round up carts from the parking lot. Or Mitnick could be a short-order cook, provided the orders were written on paper pads.

4 Golf pro. But he can't work in the pro shop or do computer analysis of anyone's swing.

5 Simple pursuits. He could sew quilts, pick fruit, trim trees, weave baskets or become a beekeeper.

6 Nanny or day care worker. "We promise to keep your kids away from computer games."

7 Low-tech lawbreaker. He can sell pot. (Oh...that might involve a pager.) Or steal cars (not new ones with Internet access, though, or any that have car phones). Or commit telephone fraud (over terrestrial lines).

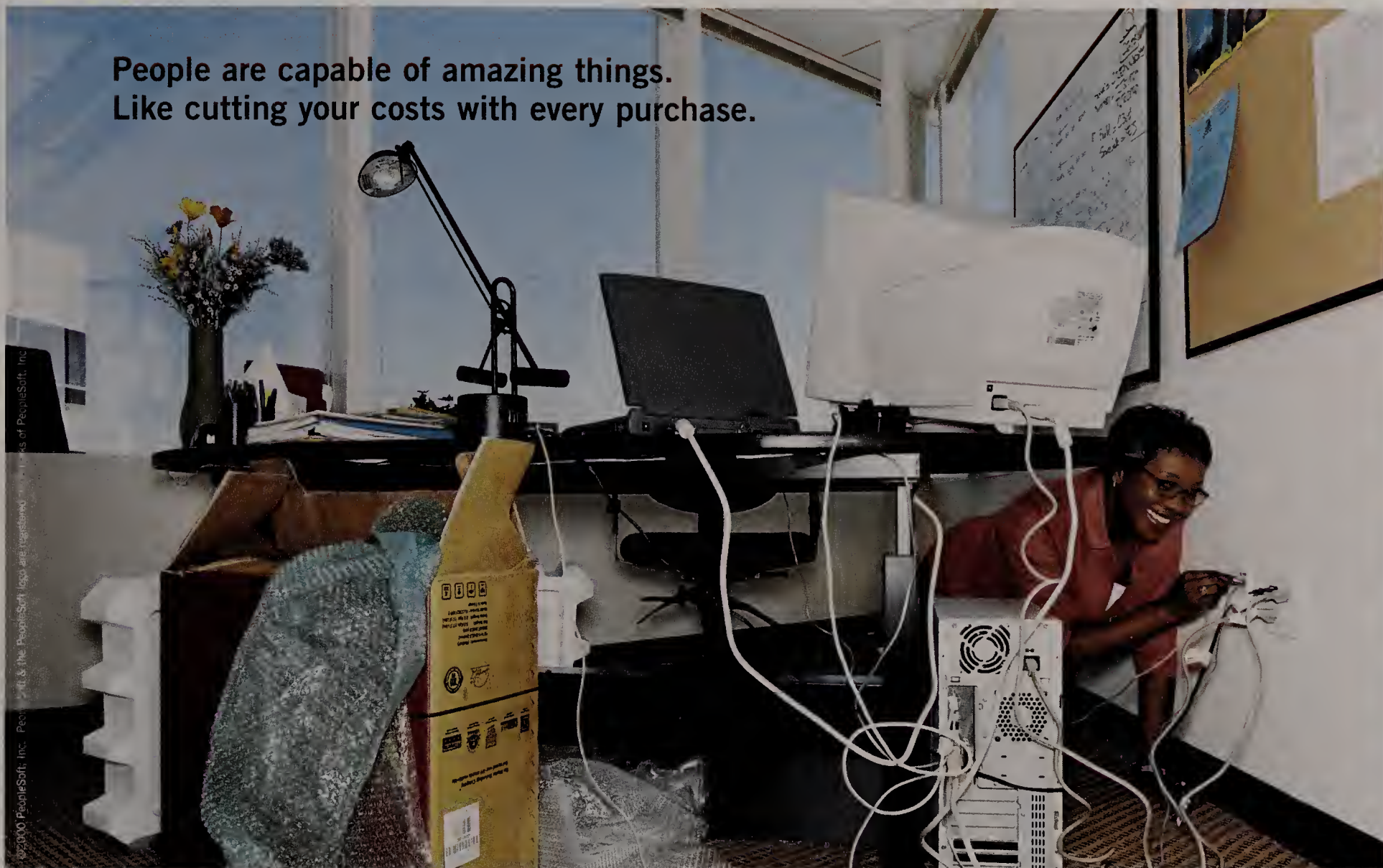
8 Musician. Kevin Mitnick and the Ethical Hackers play their greatest hits: "Risky Business," "Attacking Your Company," "Insecure Networks" and a special tribute to Miles Davis—"Round Midnight (...We'll Be Hacking into Your Servers)." Live performances only.

9 A mime. "You're stuck in...a...uh...BOX...no, no a refrigerator...no, no...OH, OH, a JAIL CELL!"

If you have other suggestions or want to help start a Hamburgers for Hackers fund, visit comment@cio.com.



People are capable of amazing things.
Like cutting your costs with every purchase.



PeopleSoft eProcurement puts the power of purchasing into the hands of every employee. Our new generation of e-business applications gives your people direct access to suppliers' goods and services. So they're able to procure what they need, when they need it — at prices you can control. Suddenly, your purchasing managers are finding you better deals, because they're not using all of their time to buy mass quantities of paper clips. And best of all, your overall costs are cut. All because your people can take advantage of the power of purchasing. Amazing.

CUSTOMERS • EMPLOYEES • SUPPLIERS

People power the internet.™

PEOPLE
Soft

SYSTEMS

A Rock in a Weary Land

By Heather Baukney

COORDINATING THE EVENT STAFF

at Coors Field used to dizzy Mike Rock, director of guest services, and his team, at the home of the Colorado Rockies in Denver. "It would take a clipboard army," he says, to ensure that the more than 400 employees per event—from parking attendants and ticket takers to hot dog vendors and ushers—were where they should be at the right time. Rock feared burnout for the staff who toiled over handwritten employee schedules and time sheets, and for workers who had to stand in line for nearly 15 minutes to check in before and after their shifts.

Rock turned to Steve Koss, director of business development at Advanced Business Integrators in Sacramento, Calif., who had designed the Time Management & Scheduling System (TMSS) to automate the staffing process at the Oakland-Alameda County Coliseum Complex in 1989. Koss teamed up with David Schwartz, president of Advanced Business Integrators, and added a graphic interface to the system. The result, TMSS 2000, saved Coors Field 12

percent in labor in its first year of use because it not only slashed the staff needed to do the scheduling but also the number of managers needed to oversee game-day workers (Coors Field now has only a few managers per 400 game-day employees). The system has also eliminated staff to check in and out workers by hand and has significantly reduced overtime.

The system simultaneously schedules hundreds of employees for an event or shift. Employees can check their proposed schedules on Wyse Winterm terminals with touch screens at the venue, or from home on the Web, and accept, decline or choose standby. Employees now punch in and are visually verified by swiping ID badges with magnetic strips. Rock raves about the live reporting capability of the system, which gives up-to-the-minute status updates on which employees are onsite, late or no-shows. "Now we don't have to radio a supervisor asking, 'How many people do you have?' and scramble to get the

right number there," says Rock. "We know exactly who's short and who's over."

TMSS 2000 is also in use at the Staples Center in Los Angeles, Portland, Ore.'s Rose Garden Arena, Pacific Bell Park in San Francisco, Pittsburgh's Three Rivers Stadium and, most recently, at Kauffman Stadium in Kansas City, Mo. At these venues and at Coors Field, buying some peanuts and Cracker Jacks at the old ball game has gotten a whole lot easier.



FORECASTING

Corporate Necrosis

The classic "dead pool" is a game where people put money on celebrities, predicting their mark will be the next one to buy the farm. Points are awarded based on age and health; you're rewarded for betting on the young and spry. So Ronald Reagan or Bob Hope might be a safe bet, but the demise of Keanu Reeves or Britney Spears would land you a bigger payoff.

The newest variation of this macabre pastime is the "dotcom dead pool" featured at www.f***edcompany.com (to get there, you have to actually spell out the F-word), the brainchild of Web developer Philip Kaplan, president of PK Interactive in New York City. Log on and select as many as five companies that you think will be next to bite the dust. Since it's difficult to determine when a dotcom actually dies, points are awarded on a scale of 1 to 100 based on the severity of a company's most recent f-uh, foul-up. For example, a misguided Super Bowl ad or minor employee layoff might net you

15 points, while an all-out corporate annihilation will get you close to 100. It's free to play, so unlike the classic dead pool, you win nothing but notoriety on the site's leader board.

But www.f***edcompany.com is more than just a ghoulish game site—it's the place to go to find out who's burned through their seed money with no new funding in sight, whose employees haven't been paid since before the Nasdaq plunge or who's been slapped with a lawsuit. Kaplan says the site gets between 250,000 and 300,000 page views per day, many coming from headhunters circling for prey, job applicants seeing if their prospective employer is f-uh, floundering and VCs identifying bad investments. At least one company has actually benefited from appearing on the site.

"Workingweekly.com was listed on my site as f***ed," says Kaplan. "That same day, their Web traffic increased tenfold, and they had 20 offers to buy their site. It's beautifully ironic." —Eric Berkman

Over 20,000 Lotus Business Partners can provide solutions for you today. For more information, call 1 800 872-3387, ext. F112. In Canada, call 1 800 GO LOTUS. ©2000 Lotus Development Corporation, an IBM company. All rights reserved. Lotus is a registered trademark and Domino and SuperHuman Software are trademarks of Lotus Development Corp. IBM is a registered trademark and the e-business logo is a trademark of International Business Machines Corp. In the United States, Sydney 2000 is a trademark of the U.S. Olympic Committee. All other company names are trademarks or registered trademarks of their respective companies. 36 USC 220506 ©COA

**THIS YEAR IN SYDNEY,
LOTUS HELPS UNITE 260,000
OLYMPIC
FAMILY MEMBERS.
GOLD MEDALS DON'T COME EASY
BUT AT LEAST
THE COLLABORATION DOES.**

And the collaboration is everywhere. Together, Lotus® and IBM created a collaborative solution called INFO, using Lotus Domino™. INFO connects Olympic Family members so they can access schedules, check scores, research athlete profiles, and more. It's one of the many ways super.human.software helps e-business people work together.

To find out more, visit www.lotus.com/superhumansoftware

SUPER.HUMAN.SOFTWARE



Lotus

An IBM Company

WORLDWIDE
PARTNER

Off the Shelf

Edited by Carol Zarrow



Build-It-Yourself Strategy

Strategic Renaissance: New Thinking and Innovative Tools to Create Great Corporate Strategies Using Insights from History and Science
By Evan M. Dudik

Amacom, 2000, \$27.95

What's wrong with business strategy? It's too tied to fads such as total quality management and business process reengineering, according to consultant Evan Dudik.

Instead of looking for advice in business books (unless, of course, you're reading *Strategic Renaissance*), which generally reverse engineer the success of one company to find its underlying strategy and then claim that the strategy applies to all companies, Dudik says corporate executives must accept the challenge of creating their own opportunity-based strategies given their particular markets, customers and competitors.

Citing examples from science, history and business, Dudik suggests that companies articulate their business strategy as a series of if/then statements. The strategy must specify both where a company plays offense vis-à-vis its competitors and where it plays defense. The elements of the strategy can't conflict with each other, and—most important but often overlooked—the

strategy must be based on something that is mission critical to the company. Following these four guidelines will enable a company to develop an effective and successful business strategy.

—Meridith Levinson

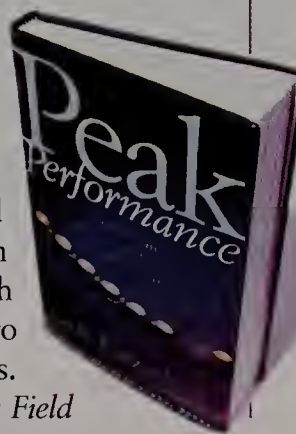
And...

Peak Performance: Aligning the Hearts and Minds of Your Employees
By Jon. R. Katzenbach

Harvard Business School Press, 2000, \$29.95

We all know it's cheaper to retain a good staff than to go out and recruit a new one. In *Peak Performance*, Jon Katzenbach discusses how successful companies maximize their personnel investment and achieve top results. By examining several high-profile organizations, including Home Depot, KFC and the U.S. Marine Corps, the author identifies five motivational techniques they have in common. He concludes with steps that readers can take to inspire their own employees.

—Tom Field



CIO Best-Seller List

5.

Eboys: The First Inside Account of Venture Capitalists at Work

by Randall E. Stross
Crown Publishing Group, 2000

4.

High Tech Start Up: The Complete Handbook for Creating Successful Companies

by John L. Nesheim
Free Press, 2000

3.

Taken for a Ride: How Daimler-Benz Drove Off with Chrysler

by Bill Vlasic and Bradley A. Stertz
William Morrow & Co., 2000

2.

The Tipping Point: How Little Things Can Make a Big Difference
by Malcolm Gladwell

Little, Brown and Co., 2000

1.

Who Moved My Cheese?: An Amazing Way to Deal with Change in Your Work and in Your Life

by Spencer Johnson
The Putnam Publishing Group, 1998

SOURCE: Aug. 4, 2000, data, compiled by Borders Group, Ann Arbor, Mich.

TELL US what you're reading and why at books@cio.com. Visit the Reading Room at www.cio.com/books.

What They're Reading

Carl Wilson, CIO, Marriott International*, Bethesda, Md. *The Art of War*, by Sun Tzu (several editions available) "Clearly points out [that] the spoils do not always go to the general with the biggest arsenal. [Sun Tzu's] principles still apply in the cyberwar we wage today."

Prakash Laufer, CEO and CIO, Motherwear*, Northampton, Mass. *The Post-Corporate World: Life After Capitalism*, by David C. Korten (Berrett-Koehler Publishers, 1999) "We need to imagine what it would be like to live in a world where our economic system is based on the premise that people matter and that all life matters, not on fear and greed."

*2000 CIO-100 honoree

INTRODUCING THE FIRST TRUE TV/COMPUTER MONITOR

YOU'LL NEVER
SEE THE WORLD
THE SAME
AGAIN.

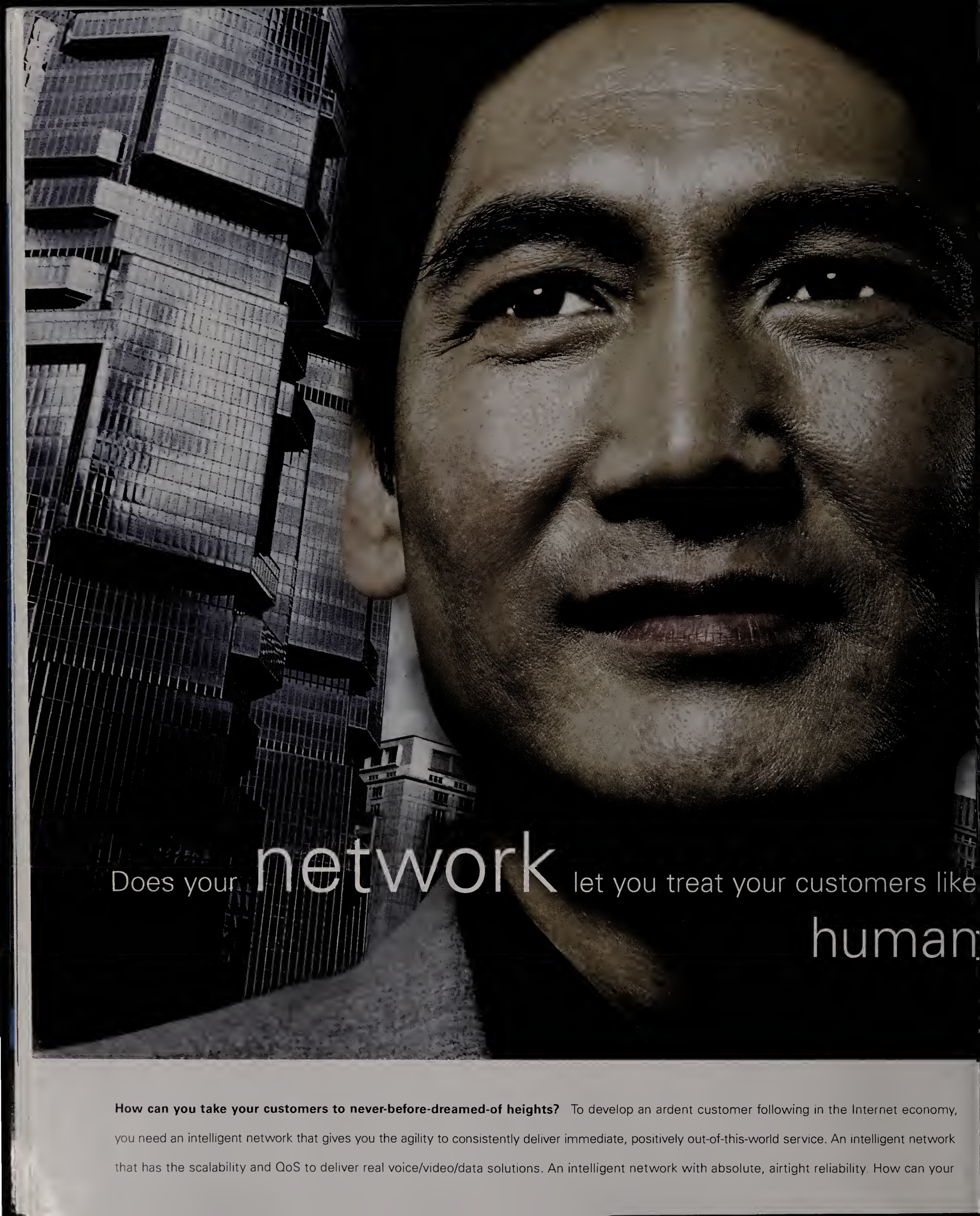
- 3-in-1 TFT monitor with TV tuner & video inputs
- Resizable PIP
- Remote control
- Built-in stereo speakers
- Digital zoom to 64 times
- Wider viewing angle
- High brightness and contrast
- 17" monitor: 1280 x 1024 max. resolution
- 15" monitor: 1024 x 768 max. resolution
- VESA wall mount compatible

STAY TUNED WITH THE
SYNCMaster MP SERIES

SAMSUNG DIGITall
everyone's invited™

1-800-SAMSUNG • www.samsungmonitor.com

© 2000 Samsung Electronics America. SyncMaster is a trademark of Samsung Electronics America.

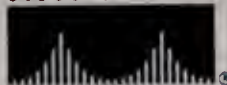


Does your **network** let you treat your customers like
human

How can you take your customers to never-before-dreamed-of heights? To develop an ardent customer following in the Internet economy, you need an intelligent network that gives you the agility to consistently deliver immediate, positively out-of-this-world service. An intelligent network that has the scalability and QoS to deliver real voice/video/data solutions. An intelligent network with absolute, airtight reliability. How can your

beings or goods?

network become so intelligent? With Cisco and Cisco AVVID technologies. Whether you're building your enterprise network or extending it with Cisco Powered Network services, we have the technologies and resources you need to transform your customer care capabilities. Discover all that's possible on the Internet at www.cisco.com/go/InternetBusiness.

CISCO SYSTEMS

EMPOWERING THE
INTERNET GENERATION™

© 1999 Cisco Systems, Inc. All rights reserved. Cisco Systems, Bridge logo, Empowering the Internet Generation and Cisco Powered Network are registered trademarks or trademarks of Cisco Systems, Inc.

E - BUSINESS

Doing the Time Warp

By Ben Worthen

IF VIDEO KILLED the radio star, the Internet has given him new life. Ron Cutler, an FM disc jockey at WIFI in Philadelphia during the mid-1960s, recently resumed spinning tunes after a three-decade hiatus. But rather than returning to an established radio station, he started his own—on the Web. Rondiamond.com, named for Cutler's on-air alter ego, has been blasting oldies into cyberspace since last November.

Cutler thinks

the Internet today is in a similar position to that of FM radio when he got his start. "When I first started as a DJ," he explains, "only about 11 percent of the audience could even receive an FM signal." Today, the lack of Internet connections, slow modem speeds and poor sound-card quality play the part of yesterday's weak FM signals. But people liked the music he played back in 1965, and soon, thanks to word of mouth and maturing technology, the Ron Diamond show sat atop the ratings. Not surprisingly, Cutler is now using the

same strategy for his website. Rondiamond.com shuns promotions and can't be found with most search engines, yet so far the site has been visited by more than 2 million visitors and attracts an estimated 80,000 unique listeners each month.

And improvements in technology promise an even wider audience. Forrester Research projects that 118 million Americans will use "self-serve radio," temporally unfettered Internet audio by 2005. "I think that audio will be the hottest aspect of the Internet," Cutler predicts. "People will never be unable to find something they love to listen to. It's so exciting."

TECHNOLOGY

Hearing Things

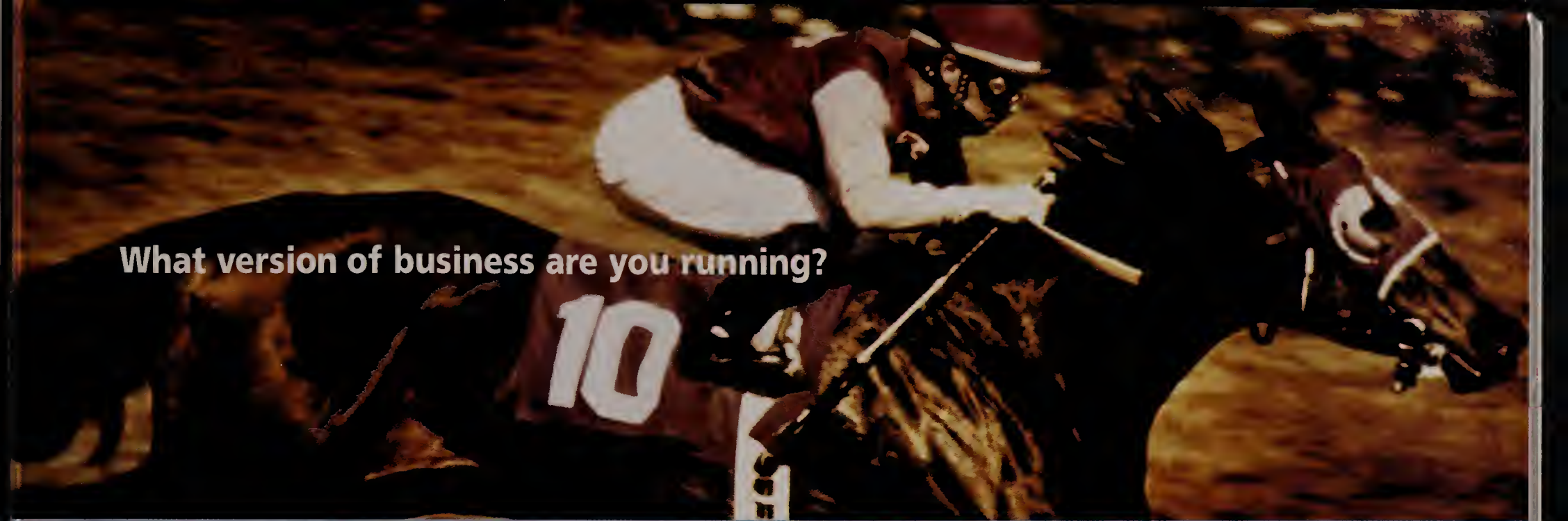
What's that? Those Rolling Stones' concerts decades ago are finally catching up with you? If you're like the 10 million Americans age 45 to 64 who the National Council on the Aging estimates have hearing loss, it may be time to face the music. Because conventional hearing aids have typically been unsightly, expensive or high maintenance, "baby boomers have rejected them in droves," says Fred Fritz, president and CEO of Cranbury, N.J.-based Songbird Hearing, developer of the world's first disposable hearing aid.

Fritz says the aid comes to the rescue of aging rockers because its disposability allows a discreet, comfortable tip that fits deeply in the ear for superior sound quality. Because it's disposable, it doesn't need a battery door, allowing the microphone to be seven times bigger than those in conventional hearing aids. It also has seven preprogrammed acoustical prescriptions, which means fewer office visits for volume adjustments. Tossing it out after 40 days eliminates the need for maintenance and keeps the price down (it costs less than \$1 a day per ear).

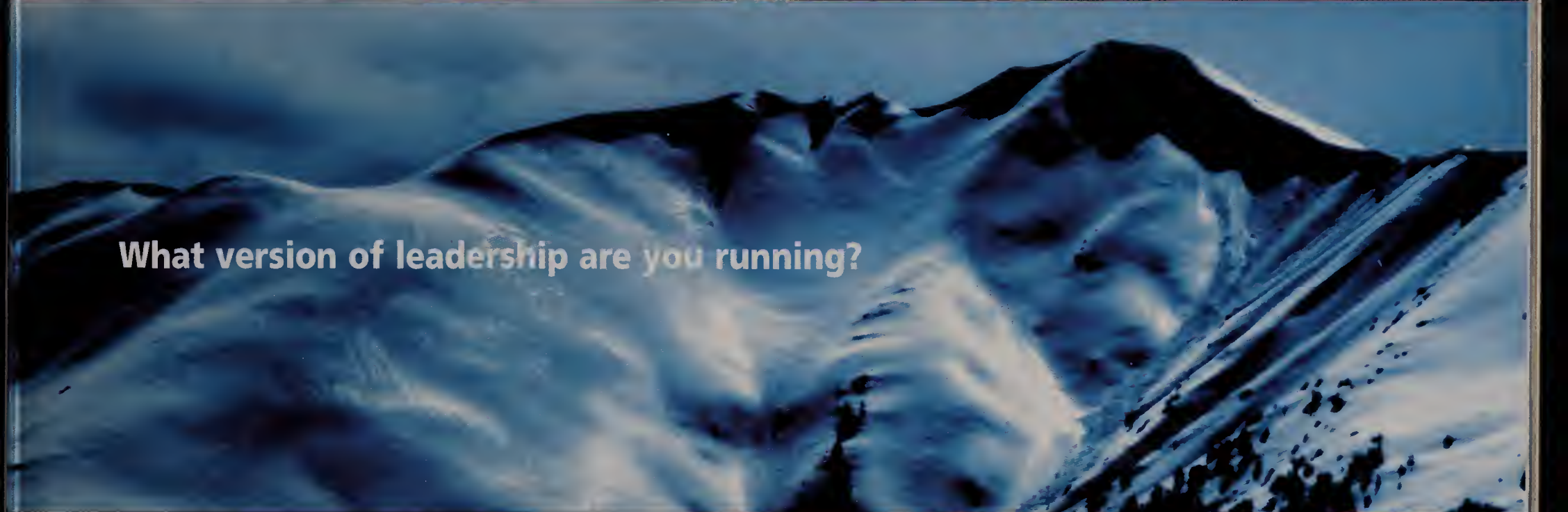
"I can't keep enough in stock," says Deborah Dempsey, a clinical audiologist at Hearing Ears Audiology Resources in Wilmington, Mass. In the past six months, not only has she fitted over 250 Songbirds, but she has also started using them to counteract her own progressive hearing loss. For more information, visit www.songbirdhearing.com. —Heather Baukney



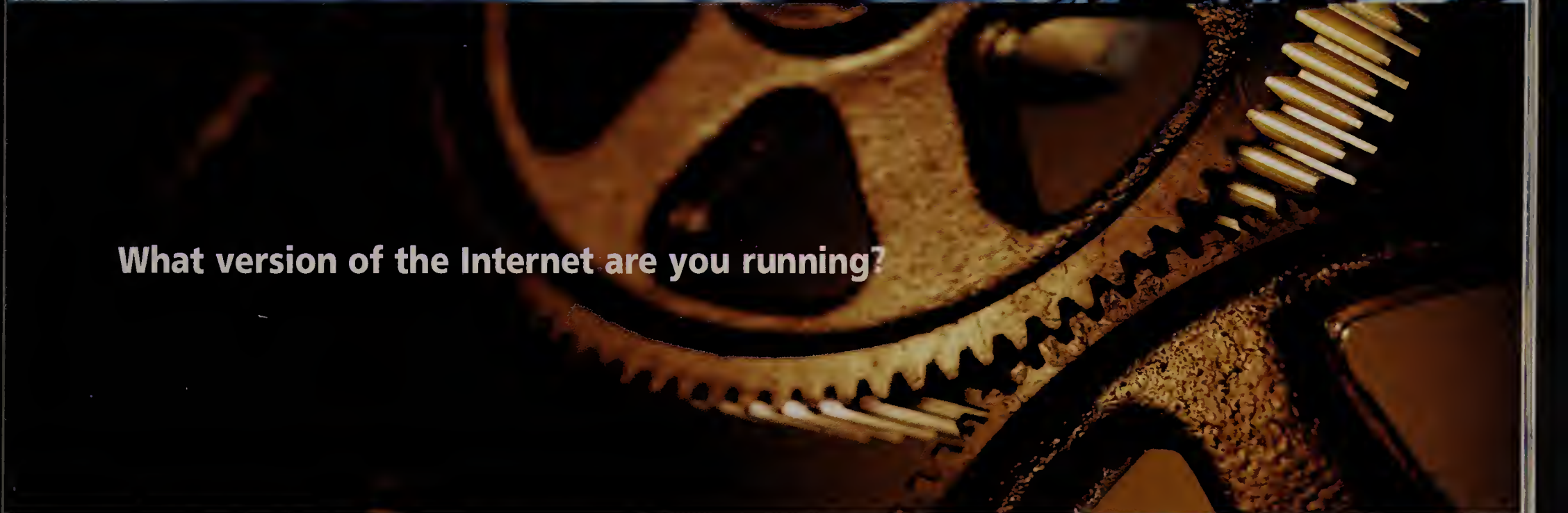
ILLUSTRATION BY BRUCE MACPHERSON



What version of business are you running?



What version of leadership are you running?



What version of the Internet are you running?

In the new economy, change happens instantly. Fortunately, UUNET's full range of services helps you meet these new demands. From DSL and Web hosting to advanced Virtual Private Networks, with UUNET you can take the Internet to new heights. New speeds. And even new versions. Call us at 1-800-465-1803. Code: Further. Or visit www.info.uu.net.

The Business Side Of The Internet.™

**UUNET**
A WorldCom Company

Canada: 1 888 242 0653 ©2000 UUNET Technologies, Inc., a subsidiary of WorldCom, Inc. All rights reserved. The UUNET logo is a trademark.

TRAINING

Play's the Thing to Catch the Conscience

By Matt Villano

SEXUAL HARASSMENT is no fun, but learning about it can be, thanks to Games2Train.com, a New York City company that recently has incorporated harassment training into a series of Web-based, question-and-answer games. Intended to make stodgy training seminars a thing of the past, this program—dubbed the Sexual Harassment Prevention Certifier—was released this summer to rave reviews.

Through arcade, card and board games, the program presents users with 40 questions about their company's sexual harassment policy, only passing candidates after they have answered every question correctly. According to Games2Train.com Founder and CEO Marc Prensky, companies can customize questions depending on the nuances of their individual policies, even developing special questions that relate to IT. The product also offers a way for employees to read background material about sexual harassment and peruse report incidents.

"More and more these days, a company needs to be proactive in making sure its employees understand that there is a policy, what that policy says and what it implies," says Prensky. "Games make that process much more engaging."

Though fairly simple, the Certifier didn't happen overnight. Prensky developed the technology by combining some advanced Java and C++ with HTML and other Web languages. Then, with the help of attorneys from Chicago-based law firm Seyfarth Shaw, he coined a set of standard questions to explain and elucidate the law. Carol M. Merchasin, the law firm's national direc-

tor of training, says many of the questions focus on issues of identifying, reporting and protecting oneself against sexual harassment.

Today, the product sells for approximately \$10 per seat—one-tenth of what it

would cost firms to put employees through seminar training. During the next few months, Prensky plans to release and market a similar program that focuses on e-commerce. For more information, check out www.games2train.com.

HOT TOPIC



Filling the Gaps

By Lee Pender

Enterprise resource planning (ERP) applications have some great tools for tracking the procurement and inventory of parts that end up in things that go to consumers, or finished goods. But it's not so great for service parts—materials meant for servicing finished goods, which can become necessary at a moment's notice based on what needs to be fixed and when.

With corporations of all sizes setting out to strengthen weak links in supply chains, vendors are looking to take up some of the supply-chain slack. One of these is Xelus of Fairport, N.Y. The company's CEO Mike Fabiaschi says, "In a finished goods environment, you make a lot of long-term decisions. In a service environment, everything happens quickly. [ERP] does not handle planning and forecasting for service."

Xelus offers four applications that handle everything from automating and tracking supply and demand for service parts to providing a Web framework for parts procurement from suppliers and partners. One of its applications allows for real-time remote planning to link users in different locations or organizations through a Web interface. A typical installation starts at around \$750,000 and depends on the configuration and services involved.

These applications are not meant to replace ERP planning and forecasting apps but to work with them, providing a service-parts complement to ERP's finished-goods capabilities. Xelus also provides its own consulting services and says it can implement its applications in as short a time as six months.

"THERE ARE A FEW THINGS I'M ENJOYING ABOUT BEING BACK IN THE CONSULTING WORLD, AND ONE IS NOT HAVING A PAGER."

—Michael Horne, former CIO, e-commerce systems, First Union, now vice president and managing director, Southeast region, The Revere Group

SEIZE YOUR MOMENT WITH COHERENT SPEED.™



Most consultants preach that in business today, speed is the imperative. Not at the Clarkston Group — we're not into speed for speed's sake. We're changing the way business keeps pace with the digital marketplace. We've developed **COHERENT SPEED™**: a new way to achieve speed, but with direction and accuracy. It's a strategic consulting process that accelerates mission-critical decision-making and abbreviates time to solution. Net-net, business is about change — we'll show you that these changes are not obstacles to

avoid, but anticipated moments to seize. For integrated e-business strategies, processes and technology solutions with Coherent Speed, seize this opportunity: www.clarkstongroup.com or 800-652-4274.

CLARKSTON

Seize The Advantage.™



Neither your competition nor new market opportunities will wait for you to add data storage capacity, hire the right people to productively employ that data, or to complete data backup and restore. That's why StorageNetworksSM provides an on-demand data storage infrastructure, network and software solutions that ensure secure, scalable and accessible data storage, and, of course, the expertise to make it all come together. This way, we save you from the distracting and costly task of storing, protecting and managing your data. In fact, we do this better and more cost-effectively than you ever could yourself. Allowing you to focus on leveraging your information and honing your competitive edge. To learn more about our secure, scalable, "easy-to-access" approach to data storage, visit us at www.STORAGENETWORKS.com.



| b |
BURKE
BLACKSTONE
BLED DRY
BY DATA STORAGE

New Economy

Opportunities and Risk in a Changing World

Money for Nothing

Why should you give online marketplaces a cut of your revenues just for attaching a few wires to your supply chain? That ain't workin'.

BY M. ERIC JOHNSON

THE INTERNET IS creating a new group of online upstarts that hope to capture a small percentage of your spending. Forming electronic marketplaces for everything from logs to office supplies, hundreds of new venture-backed startups are dreaming of redirecting the spending flows of worldwide supply chains, eventually creating mighty rivers of revenue for themselves—all without ever touching a product.

Marketplaces that bring together buyers and sellers online are the vanguard of the new economy, right? With all their benefits of increased choice and competition, cost savings on purchased goods and reduced transaction costs, it seems almost ungrateful to quibble about the fact that these marketplaces take a small percent of each transaction (usually between 2 percent and 5 percent) for themselves. Isn't this transaction cost the inevitable price of doing business in the new economy—like the taxes charged for entering a new foreign market? In a word, no—not unless it comes with more valuable services than just putting buyers and sellers together.

Well before the Internet became a B2B boomtown, FreeMarkets of Pittsburgh was proving that online auctions



of everything from circuit boards to street-sweeping services could reduce costs. FreeMarkets helps its clients write comprehensive request for quotations (RFQs) that place all sellers on a level playing field. FreeMarkets reduces the risk that sellers will pad their bids to shield themselves from any misunderstandings in the product requirements on the part of buyers. Then FreeMarkets beats the bushes for potential suppliers, screening each one to ensure its qualifications. With a solid group of qualified and informed suppliers, prices usually drop.

Buoyed by the early success of such exchanges, new entries have flooded the market with a build-it-and-they-will-come mentality. Pick up a trade magazine from your favorite industry and you will find dozens of upstart exchanges, all vying for a fraction of your spend. In every case, taxing the spend may hold promise for a time, but in the long run successful B2B exchanges will be forced to provide compelling supply-chain

ILLUSTRATION BY MARLENA ZUBER



At the NASA Ames Research Center in Mountain View, California, a small group of scientists and engineers are predicting the future of air traffic.

Using advanced visualization technology available only from Silicon Graphics, NASA FutureFlight Central gathers satellite imagery, digital photographs, and architectural data to perform real-time air traffic simulations anywhere in the world at any point in time. With this new facility, airport planners discover ways to manage flight traffic more efficiently, thereby reducing the risk of accidents and delays. The high-performance solution that powers NASA FutureFlight Central is one of many ways SGI gives its customers the power to see the challenges they face. And stay ahead of the competition. To learn more about our solutions, or for information on our services, consulting, and support, visit our Web site.

www.sgi.com/ahead

sgiTM
One step ahead

value or be relegated to the role of a technology service provider by those who hold the spending power.

Already, companies with extraordinary spending or selling power, like manufacturers (General Motors, Ford Motor Co. and DaimlerChrysler), retailers (Sears, Roebuck & Co. and Carrefour) and suppliers (DuPont & Co. and General Electric), have announced their own exchanges—effectively limiting the startup partner's role to technology provider. For the very big spenders like Wal-Mart, the power is in the spend. Why would Wal-Mart want to share its spending power and resultant prices with competitors like Kmart? More important, why would suppliers routinely sell their goods at Wal-Mart prices to smaller, less reliable partners? And the transaction fees are an annoying drain on already thin margins.

Simple consolidation of buyers and sellers has limited value and leaves the exchange's business model wide open to potential competitors.

To attract big buyers and sellers, successful exchanges must find new ways to add value and improve the flow of material through the supply chain—such as offering financial or logistics services to complete the sale. New exchanges created in partnerships with supply-chain software makers i2 Technologies in Dallas and Manugistics in Rockville, Md., aim to facilitate the entire fulfillment process from sale to delivery. While getting a good price on a few hundred tons of specialty steel is nice, the steel you just purchased may be 1,000 miles away from your factory in the back of some warehouse and could take weeks to move to where you need it. Getting a good price along with a fulfillment plan means having the steel delivered on the day you need it and at an exciting price. Linking business exchanges with logistics services that aid in supply-chain planning clearly adds value that customers will support.

Even in fragmented industries where there are fewer large buyers and sellers, online exchanges will struggle to tax sales without providing clear value. Certainly in many fragmented industries, simply matching in buyers and sellers creates value by reducing search and transaction costs. For example, Dove-Bid, based in Foster City, Calif., has produced extraordinary value for buyers and sellers in the used factory equipment market, where information is poor and geographically dispersed. Other online info-intermediaries, such as life sciences marketplace Chemdex, based in Mountain View, Calif., provide value by consolidating information from widely dispersed suppliers,

making one-stop shopping for specialty goods like laboratory equipment possible. But simple consolidation of buyers and sellers has limited value and leaves the exchange's business model wide open to potential competitors. Successful exchanges will create other compelling value propositions or find their business models threatened.

Consider the story of Redwood City, Calif.-based Instill Corp. Seven years ago, Instill entered the food services industry, offering to link restaurant operators with food distributors such as Houston-based Sysco. By automating the buying process, Instill hoped to charge the distributors a small fee for each order. The problem with this model was that the distributors saw little value from the service and quickly

decided to start their own exchanges. Struggling for survival, Instill shifted its focus. It found that it could deliver real value to restaurant chains that lacked the information resources to keep track of their spending with major food suppliers such as Kraft Foods. The result for Instill was a new model in which the restaurants—rather than the distributors—paid

for the ordering systems and enjoyed the value Instill provided.

In the alcoholic beverage market, insider eSkye.com has also tailored an offering that provides the supply chain with real value. Threatened by the possibility of outsiders invading the industry, Indianapolis-based distributor National Wine and Spirits worked with its counterparts in other states to form an exchange that would benefit everyone. Navigating the mind-numbingly complex patchwork of state and federal regulation, eSkye links retail stores, distributors and suppliers, providing visibility into a supply chain where little data existed. eSkye adds value by automating the ordering process for the retailer while providing product flow information to distributors and suppliers. The key to its success is a detailed understanding of the complex regulatory environment in a relationship-driven industry, making copycat services less likely.

Already, examples like these show that merely hooking up wires to a supply chain will not provide enough value over the long haul. With the novelty of B2B exchanges draining away, online marketplaces will find it taxing not to provide truly valuable services that are hard to duplicate. **CIO**

Already tired of online exchanges? Tell us at neconomy@cio.com. M. Eric Johnson is a member of the faculty at the Tuck School of Business at Dartmouth College. His research focuses on how information technology is changing supply chains. He can be reached at m.eric.johnson@dartmouth.edu.



Who's On The Bench?

Today's **Corporate IT Manager** is dealing with high turnover rates, resource sharing, and increased numbers of contract workers, which makes answering this question next to impossible.

Yet in order to set priorities, and deliver services on time and under budget, it is essential to know if you have the skills and availability to get the job done.

There is a way! **Account4**[®] for Corporate IT management offers what point solutions, like project management software, do not — an **integrated**, organization-wide view of your pipeline, ongoing work, employees, contractors, customers, status, and billing.

Account4 is **100% Web-based** so that you have access to the latest information — in summary or detail — *anytime, anywhere*.



Stay on top of *your* game with Account4.

Account4.com

Visit **www.account4.com** for a free copy of the "Who's on the Bench?" white paper and demo CD.

Ask the Expert

We're Not Experts on This, but We Know Someone Who Is

Love Thy Workers

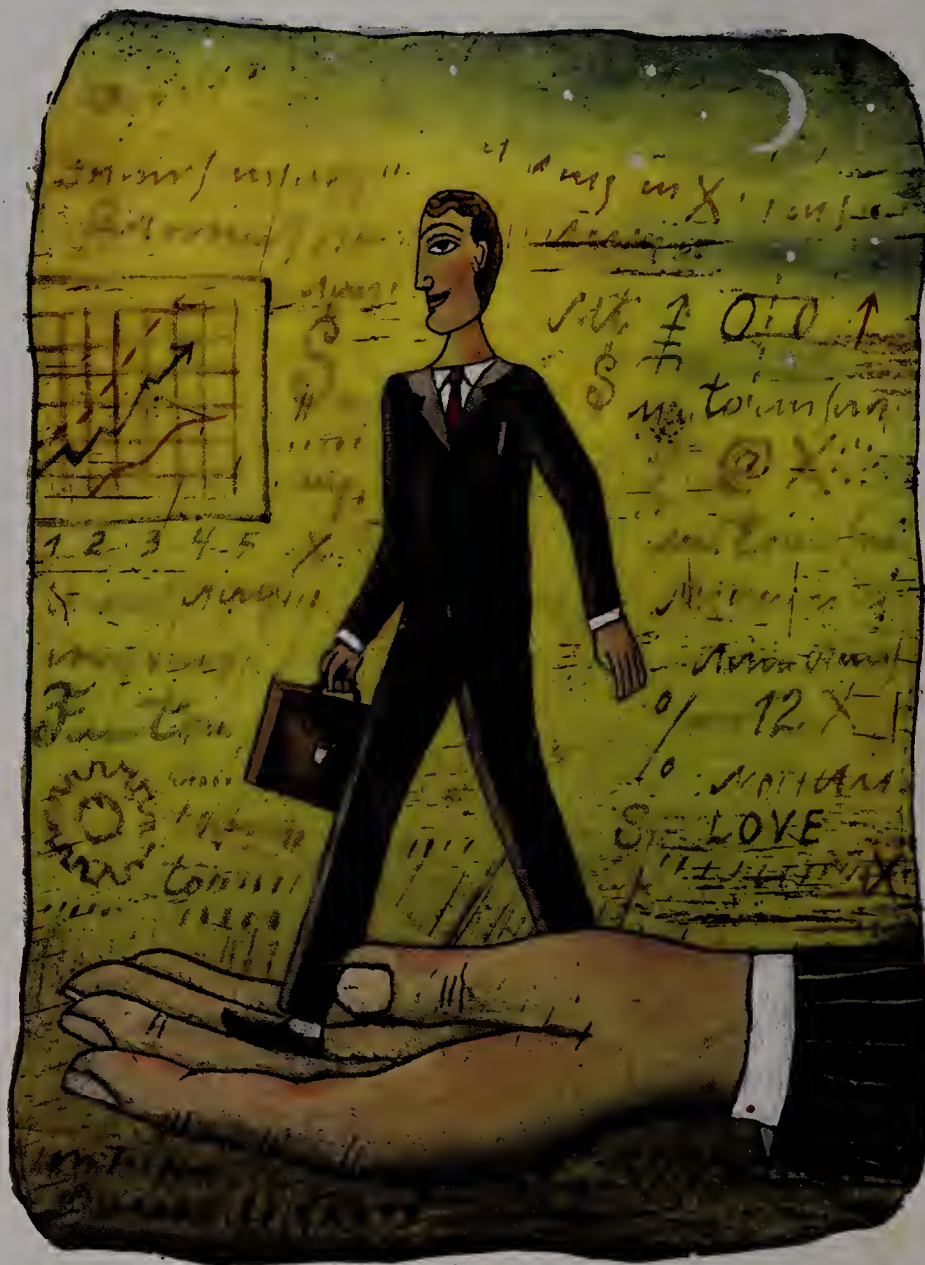
Sharon Jordan-Evans, coauthor of *Love 'Em or Lose 'Em: Getting Good People to Stay* (Berrett-Koehler Publishers, October 1999) and president of the Jordan Evans Group, a Los Angeles-based retention strategy company, answered readers' questions on CIO.com about her area of expertise, IT staffing and how to be a good boss

Q: How does the way you handle conflict in your organization affect employee retention?

A: Great question! Too many managers step away from conflict, for many reasons. I know of an excellent IT manager who recently left his company because his boss did not help him resolve a major conflict with a coworker. When he asked his boss if he should look for a new job, his boss answered, "You need to do what's best for you." What a mistake. The IT superstar felt undervalued by his boss and jumped at the first good offer (plentiful these days) that came his way. Bosses, tell your stars how critical they are and help them resolve tough situations. Do not avoid conflict.

Q: I would like to understand how to cultivate loyalty among employees. We have tried to improve training, route of advancement, pay increments and communication.

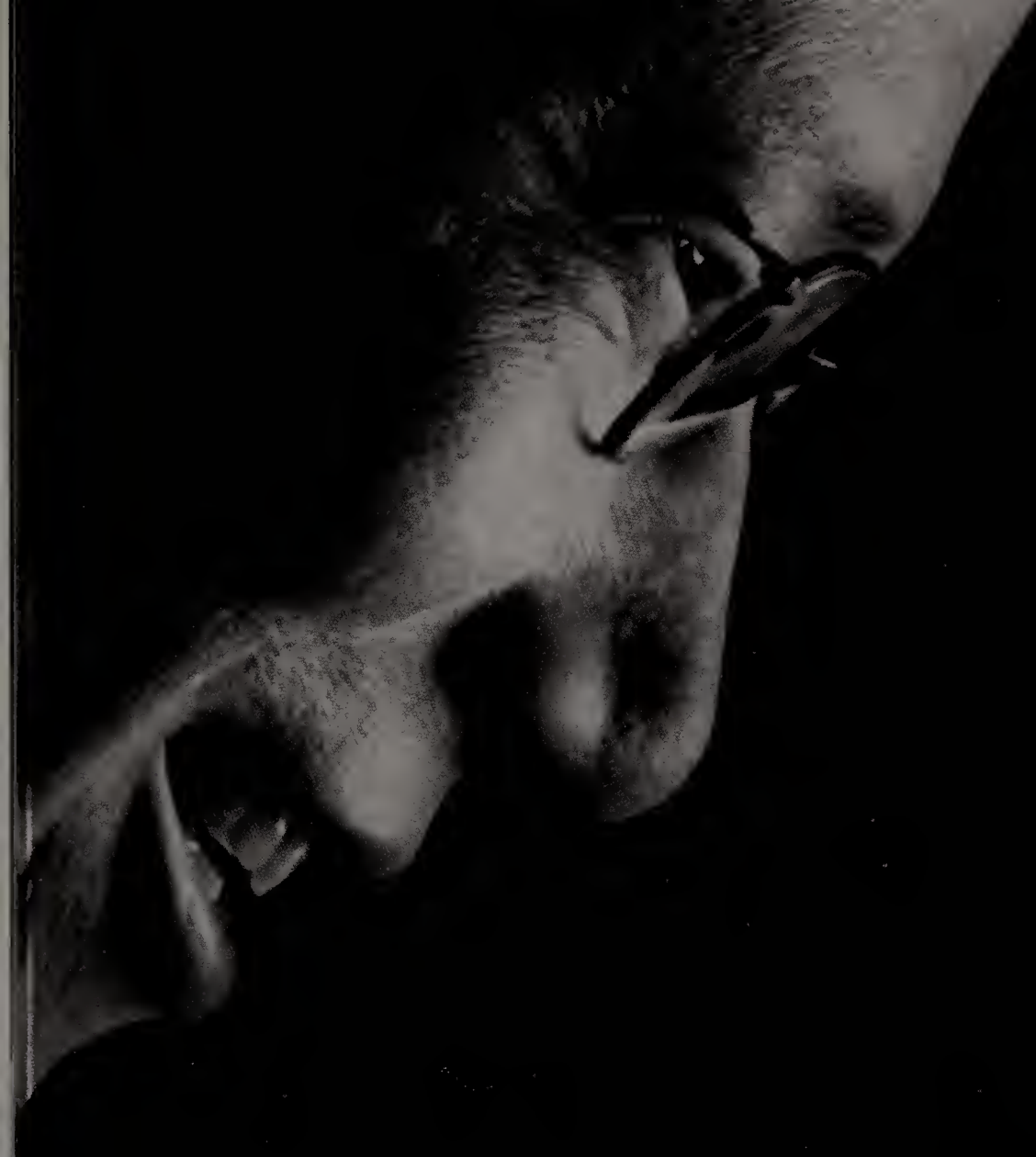
A: Have you noticed that people don't leave companies, they leave managers? One way to increase loyalty is to train your



managers to be better bosses. Today's employees are most often loyal to a boss, team or project—not the company itself. Leverage that reality, and you'll keep them.

Q: Our organization has long been touting a goal of being recognized as an "Employer of Choice." I've been concerned about this because the best measures our top management can provide for meeting this goal are our recruitment success and our attrition rate. As an engineer, I have an inherent belief that most anything can be measured, tracked and managed to meet goals. What do IT organizations commonly emphasize and measure in terms of employee satisfaction?

A: The smart IT organizations and those most successful at retaining talent measure the degree to which their employees feel they have a chance to learn and grow (No. 1 retention



You can always deliver eventually. But eventually is always too late.

Have you heard of Kintana?

Chris Wong, President & Chief Executive Officer
SkillsVillage.com

SkillsVillage.com has.

SkillsVillage.com is a rapidly growing skills procurement solution that allows companies to manage the entire process of finding, hiring, and managing contract resources, and integrate that process into their own HR and purchasing systems. Impressive. But, in order to service existing customers, acquire new ones, stay competitive, and, oh yeah, be profitable, SkillsVillage.com needs to constantly update its site quickly and efficiently.

Mission possible. With Kintano. Our software solutions allowed SkillsVillage.com to automate and integrate processes across departments and partners. Now, SkillsVillage.com can modify its site every two weeks — adding content and improving applications features — in 30-50% less time. Testing the updated site takes minutes instead of hours, and is managed by four people instead of 10.

Believe it or not, results like these can be achieved almost overnight. We can radically accelerate the speed at which your business can evolve. Do it in Kintano time. Visit www.kintano.com or call 1-877-KINTANA to find out how.



Ask the Expert

strategy), a good boss, meaningful and challenging work, and great people to work with. If you measure that and find your people are happy, you'll probably keep them. If those things are missing, you are at huge risk of losing talent.

Q: We've all heard a lot about this staffing/managing issue—and of course the easy answer is to offer larger salaries and more equity—but I would like to know about new retention strategies that are working and some that aren't. For example, I've heard of one company that leased sporty cars for its staff members who reached some level of tenure and performance. Is this reaching the employees' hearts?

Today's employees are most often loyal to a boss, team or project—not the company itself.

A: You are right on. Money and fancy perks (including BMWs) are simply not working as retention strategies. Be certain that you are paying fairly and equitably, but look beyond pay. People stay with a company for the reasons listed in the previous answer. In addition, retention strategies include flexibility of work and hours, fun on the job and the feeling of being respected. So before you jump to the "money-as-reward" solution, check to see if your people are getting those needs met. If they aren't, find out why and fix it.

Q: How do I keep our office environment a fun place to work?

A: Fun means different things to different people (read the "Kicks" chapter in *Love 'Em or Lose 'Em*), so you need to ask.

Are your employees having fun? How could work be more fun? What would they like to do? Some will say, "Let's have a volleyball court," while others want pizza brought in on Friday afternoons. Some just want to be able to take a break and surf the Internet. Support and encourage a fun environment at work, but be sure to tailor it to your employees' wants and needs. P.S. If you're worried about too much fun and a potential drop in productivity, remember to manage by objectives.

Q: What do you recommend when a good employee resigns for a better offer? Try to match the offer or just say farewell?

A: By the time your employee resigns, his head and heart are almost out the door. However, it's never too late to try. You can start by saying, "You are so important to me and this team. What can I do to keep you?" Ask more questions, like "What is enticing you away? What is missing here? What do you want to do more of/less of? Is it just a matter of money or something more? What can we do to fix it?" I've seen several cases lately where the boss made a last-minute save (by asking these questions), and the employee stayed after all. By the way, it's usually not about the money. If it's too late, and there is no salvaging the employee, graciously say good-bye. Acknowledge the contributions he made to the team. The employee who parts on great terms can be a strong ambassador for you and the organization. Who knows, he may even come back to work

for you someday. As an old saying suggests, "It's a tragedy to have endured the test but missed the lesson." If you can't save this person, you can at least learn from the experience and try to prevent it from happening again.

Q: My company has been restructuring its distributed computing support organizations into decentralized business units—this following an outsourcing exercise that resulted in choosing not to outsource. After the decentralization went into effect, one division chose to recentralize. These technologists, hot in demand by the external market, are starting to feel disenfranchised and are looking outside, finding lucrative offers and taking them. What can we do to stem this tide, stabilize the workforce and make these employees feel valued and wanted?

A: During crazy times (at least it sounds like that) the boss is critical in stabilizing the workforce and helping employees feel valued. Acknowledge these are crazy times that are rife with uncertainty and change. Then tell your talented people how important they are to you. Tell them you cannot afford to lose them. Ask them what they want. What will keep them here, despite the craziness? And even ask, What might entice them away? Then act. Customize your retention strategies to the feedback you receive. Go to bat for the employees, check into their requests, and do what you can. If you stand by them, they're more likely to stand by you. **CIO**

If you would like to recommend an expert for this column or suggest a topic, e-mail Senior Writer Daintry Duffy at dduffy@cio.com.

Ask the Expert

Have a question about preventing IT burnout? **David Hume**, manager of permanent placement for St. Louis-based Bradford & Galt, is available to offer insight and advice on why IT pros become burned out and what managers can do to prevent it. Post your questions for him now until Sept. 30 at www.cio.com/CIO/expert/ or e-mail questions to asktheexpert@cio.com.

cio.com

See why eCommerce Leaders Cisco and Dell both chose Selectica to power their next generation Internet Commerce configuration capabilities.

- 1** We are interested in (PLEASE CHECK ALL THAT APPLY):
- ☐ selling our products/services over the Internet
 - ☐ enabling sales people and distributors to configure products and sell more effectively
- 2** We plan to make a decision on an Internet selling system within:
- ☐ 1-2 months ☐ 3-6 months ☐ 6-12 months
 - ☐ more than 12 months ☐ unknown
- 3** Our company revenues are:
- ☐ less than \$50 million ☐ \$100-\$500 million
 - ☐ \$50-\$100 million ☐ more than \$500 million
- 4** May we contact you in the future via e-mail ☐ YES ☐ NO
- E-mail address: _____

(PLEASE PRINT BEFORE MAILING)

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

COUNTRY _____ PHONE () _____

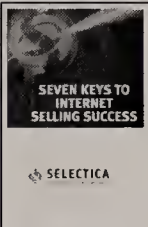


Go to WWW.SELECTICA.COM/NETREADY3 to qualify for a FREE copy of *Net Ready* (a \$24.95 value), the story of how eBusiness leaders like Cisco and Dell achieve online success (free to qualified respondents). Plus, all respondents will receive a free copy of *Seven Keys to Internet Selling Success*. Offer valid through 10/31/00. Void where prohibited. View complete rules at www.selectica.com/qualifications.

CIO

FREE GUIDE

Respond to receive your free copy of *Seven Keys to Internet Selling Success*. Discover the steps you can take to significantly increase the sale of complex products and services on the Internet.



Plus, qualified respondents will receive a free copy of *Net Ready* (A \$24.95 value). Read the inside story of how eBusiness leaders like Cisco and Dell achieve online sales success.



VISIT WWW.SELECTICA.COM/NETREADY3
Call 1-800-900-2850, ext. 3300
or Mail this card.



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO 1008 SAN JOSE, CA

POSTAGE WILL BE PAID BY ADDRESSEE

**SELECTICA
3 WEST PLUMERIA DR.
SAN JOSE, CA 95134-9932**



Dell to Deploy Selectica for Personal Systems eCommerce Enhancement

Selectica's Internet Selling System Chosen After Extensive Testing, Evaluation

SAN JOSE, CA — February 22, 2000 — Selectica™, Inc., a leading Internet Selling System (ISS) provider, today announced that Dell Computer Corporation will standardize on Selectica's award-winning ACE Enterprise™ to provide a global platform for guided selling and configuration capabilities to customers, using www.dell.com to purchase personal systems, including desktop and notebook PCs.

Cisco to Deploy Selectica for Enterprise-Wide eCommerce

Six Month Evaluation and Successful Pilot Implementation of Selectica's internet Selling System Leads Cisco to Adopt ACE for Global eCommerce Operations

SAN JOSE, CA — January 24, 2000 — Selectica™, Inc., a leading Internet Selling System (ISS) provider, today announced that Cisco Systems, Inc., has chosen Selectica's award-winning ACE™ software to power Cisco's enterprise-wide Internet commerce configuration capabilities. Cisco's decision to standardize on Selectica is the result of a six-month evaluation cycle and successful pilot implementation.

LEADERS SELECT LEADERS

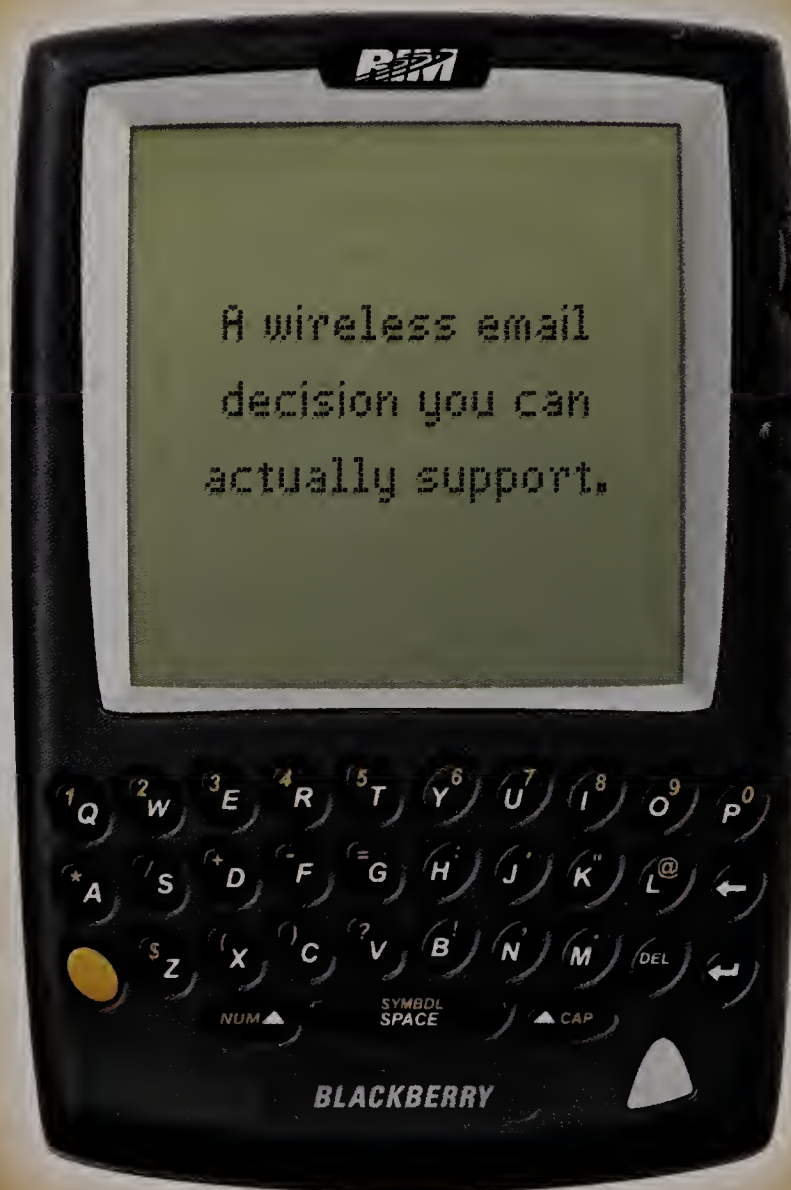
It's easy to set up a web store, but much more difficult to actually sell online. That's why eCommerce leaders Cisco and Dell both chose Selectica to power their next generation Internet commerce configuration capabilities. With Selectica, Cisco and Dell will provide their customers a unique interactive buying experience. Our Internet Selling System enables customers to find, configure and accurately order even the most complex products easily and efficiently. And now, the Selectica SME solution brings this world-class capability to small and medium businesses. Find out how in our free guide *Seven Keys to Internet Selling Success*. Plus, learn how eCommerce leaders Cisco, Dell and others successfully sell complex products and services online in the new book, *Net Ready* (a \$24.95 value, free to qualified respondents). Just call toll-free 800-900-2850, ext. 3300 or visit: WWW.SELECTICA.COM/NETREADY3



Go to www.Selectica.com/netready3 to qualify for a FREE copy of *Net Ready* (a \$24.95 value), the story of how eBusiness leaders like Cisco and Dell achieve online success (free to qualified respondents). Plus, all respondents will receive a free copy of *Seven Keys to Internet Selling Success*. Offer valid through 10/31/00. Void where prohibited. View complete rules at www.selectica.com/qualifications.

A wireless email
decision you can
actually support.

BLACKBERRY WIRELESS EMAIL



© 2000 Research In Motion Limited. All rights reserved.
BlackBerry is an end-to-end wireless email solution developed
by Research In Motion (RIM). BlackBerry, the BlackBerry logo,
the "envelope in motion" symbol, RIM, the RIM Wireless Handheld
family of marks and the RIM logo are trademarks of RIM.

BERRY SMART.

Sure, wireless is all the buzz. And undoubtedly, you're swamped with requests for handheld devices these days. But the problem is that most devices were never designed to wirelessly integrate with your corporate email system. In fact, they completely ignore your IT infrastructure and security needs. Then there's BlackBerry™. It's the leading wireless email solution specifically designed with both end users and IT in mind. BlackBerry features a totally integrated package of advanced wireless handhelds, desktop tools, enterprise server software and nationwide airtime. Mobile employees can send and receive email on the go. IT gets centralized management and control. Even corporate security requirements are addressed through support for Triple DES encryption. No wonder BlackBerry is becoming the corporate standard for wireless email. It's the smart choice for business.

"BlackBerry lets users receive and respond to email without any difficulties... we would recommend it to anyone who wants a mobile email product." INFORMATIONWEEK



WWW.BLACKBERRY.NET
INFO@BLACKBERRY.NET


BLACKBERRY
WIRELESS EMAIL SOLUTION

Fine Print

What You Don't Know Can Hurt You

Mind Your ASPs and Qs

Key legal issues to consider when drafting Internet-based outsourcing contracts

BY BARBARA M. MELBY AND N. JEFFREY KLAUDER

APPLICATION SERVICE providers (ASPs) and Internet-based business process service providers (BPSPs) are blazing the way for the e-outsourcing market. Forecasters predict that the ASP market, which often overlaps with, and is defined to include, BPSPs, will exceed \$22 billion by 2003. The Gartner Group has estimated that 40 percent of all applications will be provided through ASPs within the same time frame. These are staggering predictions for an industry still in its infancy.

In emerging markets, people look to more established markets to identify risks and legal pitfalls. But these issues, while analogous, need to be reevaluated and contracts need to be recrafted to address changes that come from using the Internet as an outsourcing platform. For example, data security issues may take on more weight in an Internet-driven deal than in a typical service offering. The trick for contract drafters and negotiators is to identify and allocate risk in a way that is equitable in light of the overall transaction and market. We've outlined here some of the key legal issues that may arise in connection with e-outsourcing transactions. These issues—and the ways they are addressed—will be tested and shaped as the market itself evolves.



Standardized vs. Negotiated Terms

Historically, few customers would accept a vendor's standard terms as a matter of course. In Internet-based outsourcing transactions, however, service providers have started using standard terms with little or no amendment. This trend is fueled by several factors including customers' urgent need to become Internet-enabled, which does not allow time for lengthy negotiations. Furthermore, market leaders are leveraging their positions to require acceptance of their terms. In an immature market, many customers opt to go with the safest (and most recognized) alternative regardless of the contract terms.

Perhaps the most prevalent use of standardized terms is in connection with "packaged" services. Here, the customer may agree to a contractual relationship through a click-wrap agreement, which by its nature is not negotiated. While there seems to be a trend toward standard terms, negotiation is more likely

ILLUSTRATION BY BENOIT LAVERDIERE



**Want
better Support
for Your
enterprise
application
decisions?**

masg.com
is where you'll
find it!

Click onto **masg.com**. We're your on-line resource for enterprise application solutions. We give you access to the world's largest and most comprehensive database of features and functions for enterprise software.

masg.com lets you search, discover, evaluate, rank and select the products you need. The information is in-depth and up-to-date. So you can document your decisions step by step, minimize the risks of decision-making and feel more confident about your recommendations.

It's timely, time-saving and manageable. Log on today. Your best decisions are a click away.

www.masg.com

masg.com

Search, Evaluate and Select

Five Penn Plaza, New York, NY 10001
800-647-1908
email: masg@tpmgnet.com
Division of Thomas Publishing Company

in large transactions, transactions where the customer has significant clout and transactions for customized services. In order for standardized terms to work, the service provider must develop terms equitable to both parties.

Scope of Services

Service providers should be able to articulate, and customers should clearly understand, the scope and type of services to be provided. When defining the scope of services, consider:

- **Points of responsibility:** At what point, or points in the

Customers' urgent need to become Internet-enabled does not allow time for lengthy negotiations.

network, does the service provider assume responsibility? For example, most ASPs will not assume responsibility, and in fact they will seek to be excused for performance failures resulting from connectivity failures caused by a third-party provider.

- **Integration and compatibility:** To what extent is the service provider responsible for integrating its systems with the customer's systems or ensuring compatibility of systems? Is any application or data conversion necessary?

- **Technology changes:** What is the service provider's responsibility for knowing of, implementing and maintaining new technologies, including new releases, updates and upgrades?

- **Support:** Negotiators will need to iron out the types of support services to be offered (help desk, problem resolution, training), when such support will be available (normal business hours, 24/7) and how such support will be provided (an online help desk, onsite). The contract should outline standard problem-escalation procedures for handling service issues.

In a market where service providers may be eager to please in order to acquire market share, customers need to be careful to contract for service levels that the provider can practically meet. If it sounds too good to be true, it probably is. Contracts should also address under what circumstances the service provider should be excused from performance—such as third-party or customer-caused failures and *force majeure* events.

Contract negotiators should further evaluate the consequences of termination or expiration. For example, what types of assistance will the service provider offer on termination or expiration? Will the customer have any ongoing rights to use service provider-owned or licensed technology? Will the service provider incur any wind-down costs that should be borne by the customer such as redeployment or termination of resources including people, machines and software?

Security and Data

With the increased potential for unauthorized access in Internet-based transactions, data and system security is a particularly hot topic. Customers need assurance that their data and systems will not be subject to unauthorized access or disclosure, or commingling with other's data. Many ASP sites now post security policies that describe the safeguards in place, as well as the procedures in the event there is a breach of data or system integrity.

Most sites also make affirmative statements regarding the use of customer information, particularly personal data. This is driven not only by customer expectations but also by privacy and confidentiality laws. The service provider should be restricted from using customer information, even

for benchmarking or research purposes, unless expressly approved by the customer.

Liability

Limiting liability to discrete events and reasonable amounts in light of the value of the overall transaction is crucial. Vendors typically try to cap the amount of direct damages they may be liable for (often tied to a percentage of the fees for a certain number of months). Both parties should disclaim liability for any damages that they may have little or no control over.

In Internet-based outsourcing, there may be multiple providers where there has traditionally been a primary contractor/subcontractor relationship. For example, connectivity may be the responsibility of a third party and therefore out of the service provider's control. At this time, the marketplace is tolerating some disclaimer and delegation of responsibility for third-party acts and omissions. As the market matures and services are consolidated, service providers may have to step up to assume more primary responsibility.

Negotiators for both customers and service providers should work through potential scenarios in an effort to identify areas of liability and risk. It is prudent to have risk-management, audit and insurance experts analyze these risks and recommend ways to reduce potential exposure. The best approach is typically not to disclaim a risk but to assume risk that is fair and manageable in light of the overall business deal. A fair contract is the best contract, after all. **CIO**

Barbara M. Melby is of counsel at Morgan, Lewis & Bockius in Philadelphia (bmelby@morganlewis.com) and N. Jeffrey Klauder is senior vice president at Safeguard Scientifics (njklauder@safeguard.com). Tales to tell of contract woe or bliss? E-mail fineprint@cio.com.

Concord's eHealth™. Because you never know where the next threat to your e-business will come from.

► whirlwind availability requirements

► end-user service demand surge

It's crazy out there. But here's how to keep your mental health: Concord's eHealth™ solution suite.

Building on the success of our Network Health® product, Concord's eHealth consists of fully integrated best-of-breed products that measure, monitor, and proactively manage potential threats to your e-business. eHealth modules for Applications, Systems, and Networks provide early and detailed alerts, scales easily to meet ever-changing business needs, and quickly integrates into your existing technology infrastructure.

► shocking drop in application response

► huge obstacles to peak network performance

There's danger on every step of the road way to successful e-business. Get all the help you can: Concord's eHealth.

Find out more at www.concord.com
or call 800-851-8725.

 **concord**



With the new Powerware 9330, you won't have to. You get high-end features like Powerware® Hot Sync paralleling, plus total power and environmental monitoring software. All in an affordable mid-size UPS. And the 9330 is scalable, modular and flexible to grow with your business. Powerware, formerly Exide Electronics, has been protecting mission-critical customers for over 37 years. And we put that experience

www.powerware.com



**It's hard to explain to
a CEO why his \$50 million
data center keeps crashing.**



**Protect yourself.
Introducing the 9330
Powerware UPS.**

into the hardware, software and
service we offer you today. To learn
more, visit www.powerware.com/9330
or call 1-800-469-4842.

POWERWARE[®]
UNINTERRUPTIBLE POWER SYSTEMS

Career Counsel

Mark Polansky Offers Advice to Aspiring CIOs and IT Managers

A Fork in the Career Road

Q: I have been a CIO for a year at a midsize property-casualty insurance company. It is my first job in IT—I spent my previous 20 years on the business side of insurance. As I evaluate future career moves, I need to know how to assess whether I should plan to take my increased technical knowledge back to the business side or increase my technical background to strengthen my position in the IT world.

A: My first reaction to your question is to ask, Which career path would you enjoy more—the business side or the IT side? If you have a strong desire to stay in IT, do so with great caution and with the realization that your lack of a technical career foundation and your inexperience working your way up the ladder within IT will always be a limiting factor—sometimes a small one and sometimes a very large one.

On the other hand, if your heart (and expertise, of course) lies on the business side of your particular industry, you will be a far more effective business leader when you return there, given your newly acquired and strong understanding and appreciation of IT, and how technology can be utilized for

operational efficiency, organizational effectiveness and competitive advantage in your business unit.

WHEN YOU NEED A CIO

Q: At what size should a company consider hiring a CIO? I know the answer is always, “It depends,” but at what point should a company move from having the IT director as the top IT position to CIO?

A: You’re right...it depends only on whether the company wishes to make its operations more cost-effective, its customer service more excellent, its direct sales and sales channels more competitive, and its P&L rosier. In other words, every company, of any size, in any industry and in any place, should have a CIO. It really depends on how big the CIO needs to be. The notion that smaller companies, and in many cases privately or



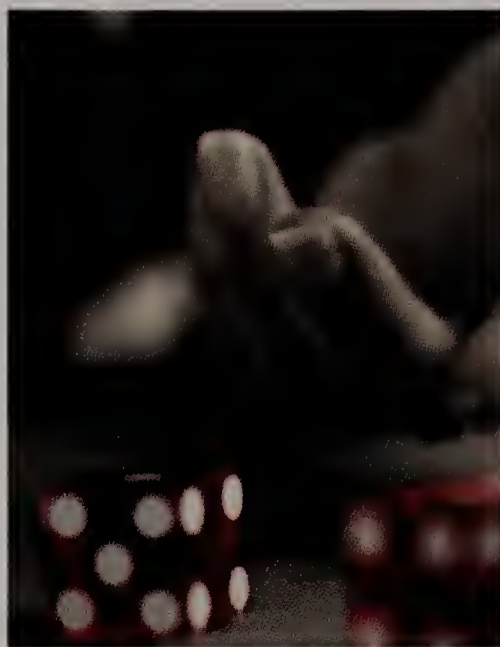
ILLUSTRATION BY JON BERKELEY

Strategy



Our VP of Business Development wants to sell to 5 B2B eMarketplaces

Reality



Which 5: TBD

Solution



The sell-side @dge

Different eMarketplaces, same strategy. It's not only important to hook up to several B2B eMarketplaces – it's imperative. That's why with OrderFusion's sell-side eCommerce platform, you don't have to limit what eMarketplaces you sell through. You can hook up to any one or every one. Now wherever your customers go – you go too.

Everything can change tomorrow. Your customers and eMarketplaces can merge, change and part again. All the while, electronic and human sales channels need accurate and consistent information to sell effectively. With OrderFusion you'll know who's browsing, who's buying and every detail in between.

I've got it all under control. From customer-specific catalogs and pricing to quotes and advanced order management, Orders of Magnitude™ delivers. By linking to your existing systems and providing total synchronization between all your sales channels, this system looks as good from the inside as it does from the outside.

There's no time like the present to implement the eCommerce platform of the future. Visit www.orderfusion.com today and download your guide to eCommerce success. Or for more information on OrderFusion and Orders of Magnitude call 888-653-8096.



OrderFusion™
The sell-side @dge

Career Counsel

closely held and family businesses, don't need a comprehensive IT strategy and operating plan is totally backward. It's the little guy who can realize a disproportionately higher percentage gain in operating efficiency and competitive advantage through IT in lieu of the large-scale economy he is missing. Technology is clearly a great equalizer among companies of varying sizes, especially in the new economy.

SEARCHING FOR A NEW JOB

Q: I am an IS professional with more than 10 years of experience. I am interested in applying my knowledge, skills and experience as an executive recruiter. How does one go about becoming a headhunter at a search company?

A: Start by creating a résumé that emphasizes the baseline knowledge and skills you have acquired that are appropriate to the search profession, namely a consummate knowledge of

some of the newer, more forward-thinking initiatives that would continue to make the job challenging.

I am thinking that there is a need for consulting services that address this small to midsize market in the provision of director or CIO-level services for those businesses that do not want, or cannot afford, permanent senior staff. The focus would be on those front-end activities necessary to update systems and technology in those companies in which this has not been an ongoing activity. How would I approach my current employer about a withdrawal into such a part-time consulting role as I develop this opportunity? Do you see small to midsize companies in search of or in need of such services?

A: Yes, there is a need for top information technology management talent at companies of all sizes, including the small-to middle-market space, just as there is a severe general shortage of qualified IT workers at all levels. The realization of the

need for top-notch CIOs is growing rapidly in traditional businesses as well as at dot-coms, putting a market premium on really good CIOs and a lot of pressure on my colleagues and me. Your "Rent-a-CIO" idea is a good one, and one that already exists within the scope of the Big Five accounting companies and other consulting organizations, and

several specialty companies.

If you have vertical market, or local or regional visibility, and a strong reputation as a highly accomplished CIO, then you might qualify for this rewarding career alternative. This is especially true if your recognition is focused in a unique industry such as financial services or retailing, or in certain business models, such as high-volume distribution companies. It helps if you are known in the business world, by speaking at conferences, giving interviews and getting quoted in trade publications, such as *CIO*. Marketing yourself can be tough, especially while on assignment, so consider aligning yourself with a consulting company that specializes in pro tempore employment. A couple of the better known companies in this space are the Feld Group in Dallas and Transition Partners in Reston, Va.

[Editor's Note: Read the related article "CIOs for Hire" at www.cio.com/archive/050100_platform.html.]

CHANGE AGENT

Q: After starting as a programmer and quickly realizing the need for an interface to the business, I acted quickly to develop my business acumen by focusing on analysis and design, resource and project management, and even taking a stint in sales and marketing. My aim was to move into an executive role.

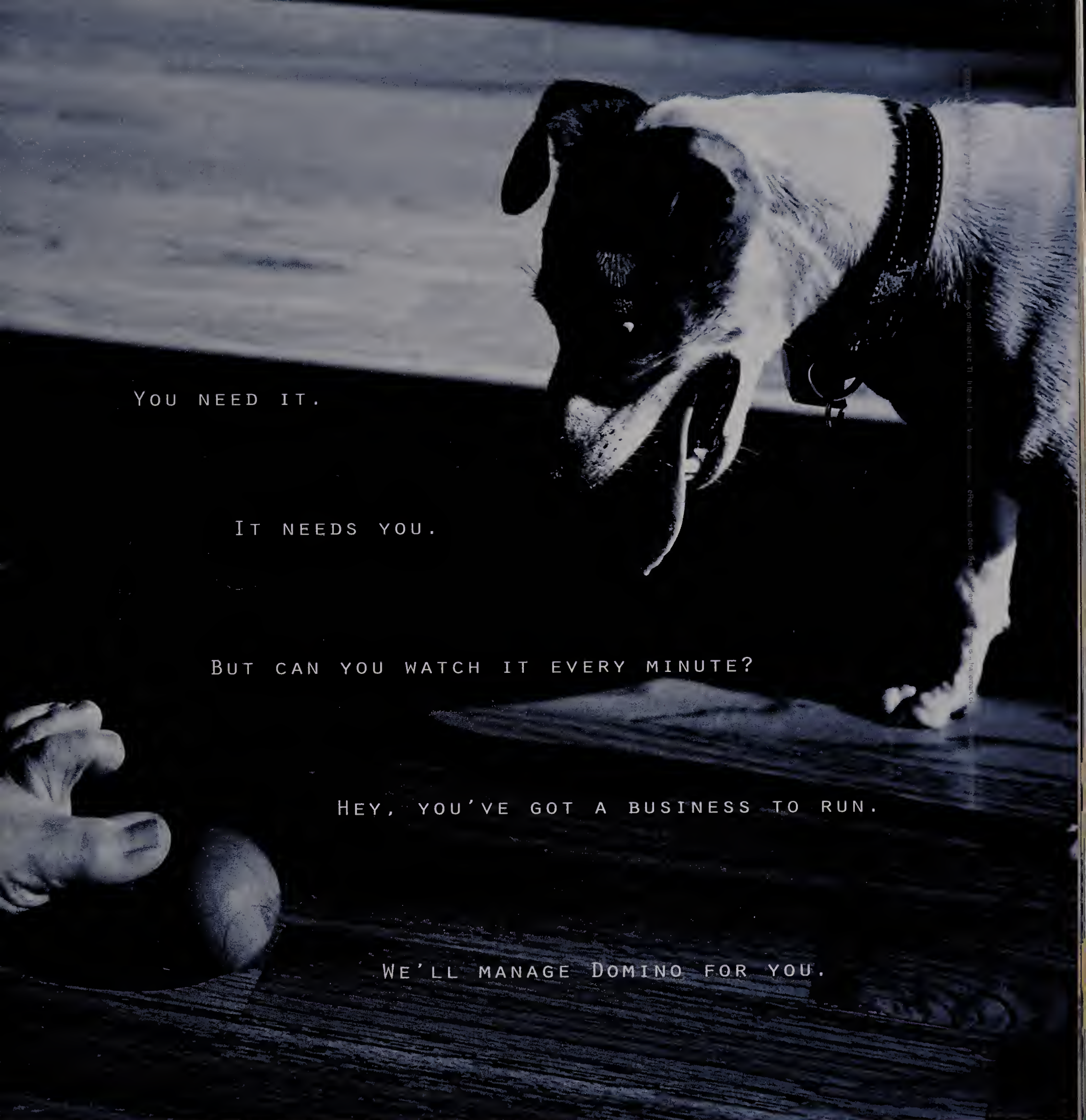
However, I find permanency has limitations and restrictions

The need for top-notch CIOs is growing rapidly in traditional businesses as well as at dotcoms, putting a market premium on really good CIOs.

the technology industry, a broad exposure to a wide variety of industries, a strong understanding of business models and strategies, and their financial and organizational requirements, salesmanship and persuasiveness, goal-oriented and driven behavior, an obsessive work ethic, successful recruiting and staffing experience including excellent interviewing and candidate-evaluative skills, and business development capabilities. Then put together a target list of search companies, large or small, by using *The Directory of Executive Recruiters* (Kennedy Information, 1999), focusing on those that have information technology specialty practices in your geography of choice. Then be resourceful and persistent in mailing, e-mailing and phone calling. Good luck!

CIOs FOR HIRE

Q: I am currently the IS director for a small manufacturing company (\$60 million). This is the second intermediate position I have held in middle management in a Fortune 500 organization. Through these experiences I have found that small and medium-size organizations are where I belong, with the wider variety of experience and exposure, and the greater visibility to the top of the organization. The downside I find, however, is that after an initial burst of projects intended to modernize, standardize and generally improve systems operations, it becomes more difficult in the smaller company to implement



YOU NEED IT.

IT NEEDS YOU.

BUT CAN YOU WATCH IT EVERY MINUTE?

HEY, YOU'VE GOT A BUSINESS TO RUN.

WE'LL MANAGE DOMINO FOR YOU.

INTERLIANT eREACH MANAGES LOTUS DOMINO FOR YOU — INCLUDING MESSAGING AND APPLICATION MANAGEMENT, 24x7 MONITORING, DISASTER RECOVERY AND MORE. FOR OPTIMAL PERFORMANCE WE KEEP SERVERS AT YOUR SITE, AND WE HAVE MORE EXPERIENCE WITH DOMINO THAN ANYONE, TO GIVE YOU MORE TIME TO RUN YOUR BUSINESS.

FOR MORE, 1-800-334-2403 OR WWW.INTERLIANT.COM/EREACH

Interliant® WE SELL SANITY.™

Career Counsel

plus an abundance of administration, and I really like being a change agent. What steps and preparation would you suggest to move to IS management consulting?

A: It sounds as though you have already done much of what I would recommend, namely, combining a solid technical foundation with leadership and resource management skills, and acquiring a strong knowledge of general business and, perhaps, of a particular industry. You might consider getting your MBA, either on a part-time or distance-learning basis, or attending one of the better executive MBA programs.

It's not clear from your question whether you are consider-

Have a career question?

Visit our website at www.cio.com/forums/executive/counselor.html and pose your own questions to Mark Polansky.

ing becoming a salaried employee of a consulting organization or hanging out your own shingle as a single practitioner. In the first case, you're already good to go. Just brush up your résumé and start interviewing. In the latter case, what's missing is your knowledge of the consulting business: how to market and price your services, how to generate competitive and profitable proposals, invoicing, control and reporting.

I suggest joining one of the best search companies and spending a couple of years learning the ropes and establishing your network of contacts. Before signing up, however, be wary of signing a covenant not to compete, better known as a non-compete agreement, which would lock you out of the business in a certain geography or marketplace for some amount of time after leaving the company.

DAY-TO-DAY OPERATIONS

Q: I am an IT director at a small, \$30 million advertising agency. Our network manager is very territorial about her department and has basically told me that she doesn't want my involvement with the network operations of our company. I am primarily responsible for overall IT strategy, application development and the development of an interactive marketing services practice within the company.

My CEO agrees with the network manager that I should not concern myself with day-to-day network operations, tech support, upgrade plans and other areas that are part of the network manager's domain. Will this be a hindrance to me if I pursue other IT management positions elsewhere?

A: As your company's IT director, the network manager should report to you from an organizational perspective. But since she doesn't, on one level she is right that you are not responsible for her or her operation. That said, the potential opportunities for conflict between design and reality, specification and execution, intention and operation are all too obvious in this scenario. Add to that the apparent chemistry and attitude problems and lack of teamwork, plus a CEO who may not be consensus-oriented, and you've got a daily headache waiting to happen. Live with it or move on. No, this won't hurt your career progress, certainly not in this seller's market. In fact, it's one of the perfectly understandable factors in your decision to consider alternative employment opportunities.

MOVING TO THE BIG LEAGUES

Q: I am currently an IS manager about to step up to the CIO/IT director role. Can you recommend some books or a course I should attend before I am promoted?

A: First, please accept our congratulations and best wishes for success! There is no lack of sources of information and references for the CIO role, and a search of the Web's bookselling sites will yield dozens of appropriate titles. You have already connected with one of the very best places to be, namely CIO.com (CXO Media). This organization, with its archives of published material, plus its yearlong conference schedule, is a great place to start. And check out the primary IT advisory services, including Forrester Research, Gartner Group, Meta Group, as well as the many IT-related websites such as www.earthweb.com.

Additionally, log on to www.simnet.org, the website of the Society for Information Management (SIM), which is the preeminent business-oriented IT membership organization. Check out its publications and conferences, consider its Regional Learning Forum program, which is like an executive MBA for information technology management, and get involved in a local chapter if there is one in your area. If not, reach out to your peer CIOs in town, starting within your own industry if possible, and get involved in any local CIO roundtable groups—or start one (or a SIM chapter) if there aren't any. **CIO**

Mark Polansky is a managing director and member of the advanced technology practice of Korn/Ferry International in New York City. He is also the chairman of the Greater New York Chapter of the Society for Information Management. The Web-based Executive Career Counselor column is edited by Web Research Editor Kathleen Kotwica. She can be reached at kkotwica@cio.com.

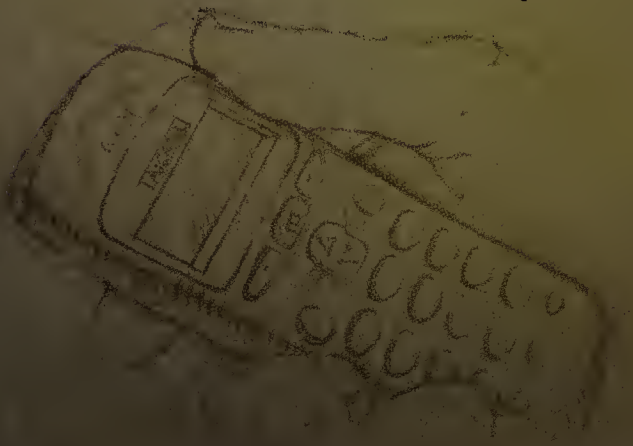


PHOTO BY ANDRE SOROUJON



here shall be wings! And man, who shall
know all and shall have wings shall also
have voicemail that works just like his e-mail.

—Leonardo da Vinci (New Translation)



As foretold, the age of integrated voice and data has come, changing the lives of everyone in your company.

Today Alcatel has realized the full potential of network convergence. Ideas such as sorted, prioritized e-mail and voicemail messages, dial by name, integrated keyboards and phones built into PCs are now reality.

Imagine providing your Web customers with direct contact to a service agent equipped with customized data. Or giving your critical contacts the ability to reach

you anytime, anywhere, by dialing a single number.

Alcatel's OmniPCX 4400 does everything that a PBX does, and much more. With 99.999% reliability and a distributed client/server architecture, OmniPCX 4400 will deliver powerful converged applications to companies ranging all the way from 50 to more than 50,000 people, for the next decade and beyond.

Alcatel. 120,000 people. Internet, enterprise, and telecom solutions around the globe. www.OmniPCX.com/ads

PROPHECY FULFILLED:

OmniPCX 4400 provides unified messaging with the power to integrate voicemail and e-mail.

ALCATEL

ARCHITECTS OF AN INTERNET WORLD



Who Helps

Ameritrade

Make Trading Online As Rewarding As Possible?

Kana.

It's all about empowering customers, partners and the enterprise to interact in the most cost-effective and efficient ways possible. Kana is changing the way leading companies like AmeritradeSM Inc. build long-lasting relationships in one complete e-business solution.

Kana provides comprehensive communication and e-business applications designed to engage, acquire and grow customers at every stage of the lifecycle. By integrating marketing, sales and service into a single Web-based platform, Kana gives customers, partners and the enterprise a global view of their interactions across multiple channels.

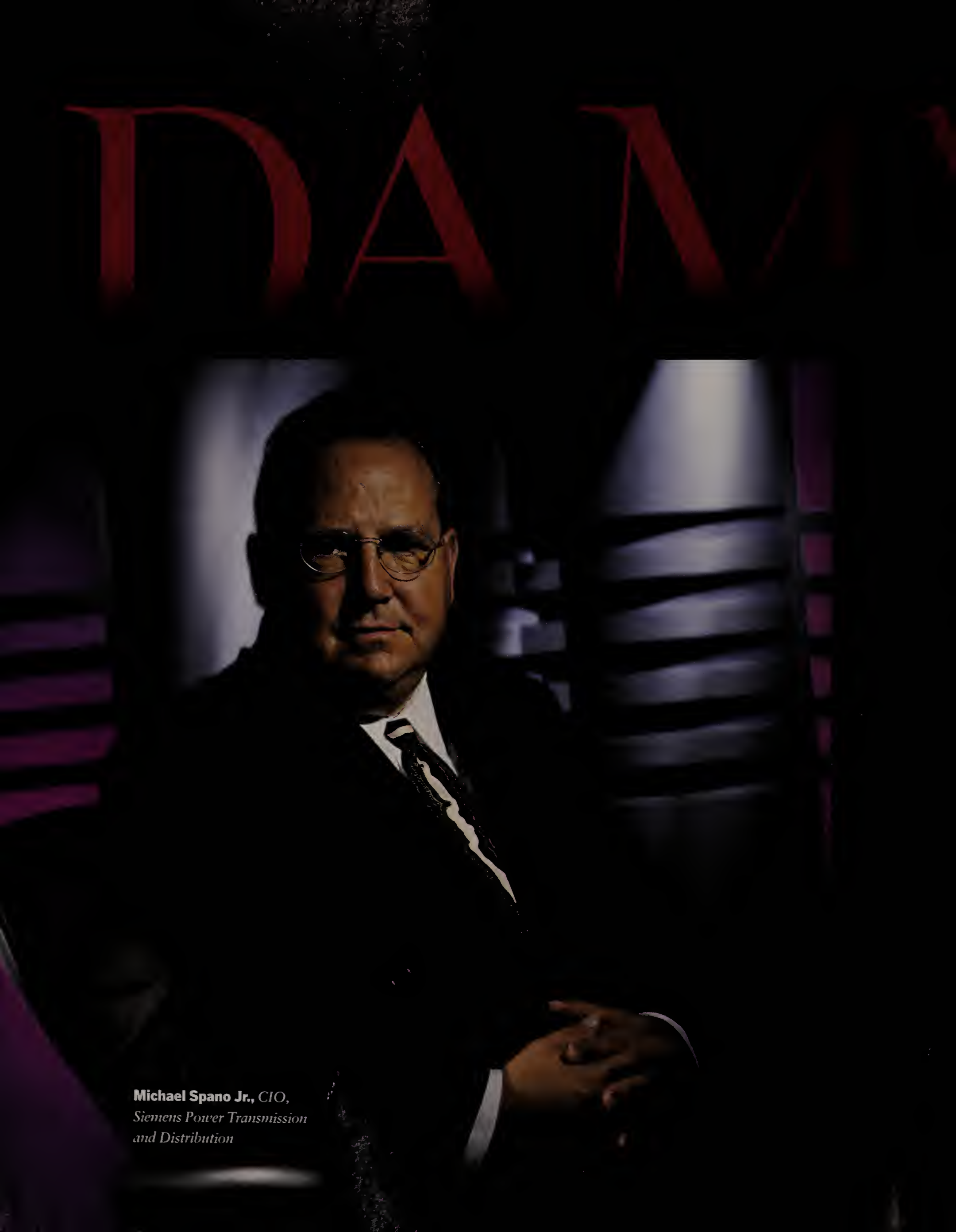
Offering unsurpassed service and support, systems integration and a cost-effective hosted option, Kana has the solution to make your e-business succeed.

So, if you're in the market for a solution that will increase revenue, reduce operating costs and build greater customer loyalty, follow the lead of Ameritrade and hundreds of other successful Internet-based and Global 2000 e-businesses.

For a FREE Kana demo, visit our Web site today.

www.kana.com/exec





Michael Spano Jr., CIO,
*Siemens Power Transmission
and Distribution*

NEED If You Do...

Will integration tools patch the holes left by an unsatisfactory ERP implementation?

WHEN MICHAEL R. SPANO JR. set out to re-create his company's enterprise systems in the summer of 1998, he knew application integration wasn't going to be easy. The CIO of Siemens Power Transmission and Distribution in Raleigh, N.C., chose general ledger and electronic data interchange applications from Baan Co. as the company's fundamental enterprise resource planning (ERP) applications. He then planned to add more preintegrated Baan applications in phases.

But like so many other CIOs' plans for ERP perfection, Spano's scheme hit a snag. Recoiling from the \$12 million bill for the first phase of the company's ERP implementation—a price tag CIOs know as acceptable, if not unbelievably low—the financial powers that were put a halt to Spano's project. Since then, Spano has been forced to make do with a slate of disparate applications. Components such as project management remain in the realm of third-party applications, some of which are becoming outdated.

“We had a full-blown plan, but when we ran out of money, [the system] became piecemeal,” Spano says. “After Phase 1, they said we couldn't afford to keep going.

Reader ROI

Understand the potential pitfalls of EAI technology

Learn why EAI is not a cure-all or quick-fix solution

Discover what to look for when choosing an EAI tool

There's absolutely nothing I can do. When the bean counter tightens the purse strings, you're hosed."

"Hosed" describes the state in which many CIOs find themselves in the aftermath of ERP implementations. In the mid to late 1990s, ERP became the rage as a solution to the 2000 threat. It also promised the decline of clunky legacy systems that often did not coexist harmoniously within an enterprise. ERP had components to automate just about everything a company needed to do—from payroll to manufacturing. The technology would ideally allow CIOs to update and integrate enterprise systems.

But, as many CIOs have experienced, it didn't always provide the integration they expected. As a result, IT executives are faced once again with the challenge of integrating enterprise applications—a challenge heightened by the hypercompetitive race to

establish an e-commerce foothold. Seizing the opportunity, a bevy of new vendors has sprung up with the goal of providing relatively simple, low-cost applications for tying one piece of enterprise software to another. Enterprise application integration (EAI) software has moved from buzz



If I don't play in the e-commerce game in the next year or two, there's no reason to stay in business.

—MICHAEL SPANO JR.

term to hot market (see "Middleware Demystified," *CIO*, May 15, 2000). The EAI market is hot for one reason: Many CIOs need the technology. And they need it now.

It's easy to understand why CIOs have this need. EAI aims to automate the process of tying together disparate systems, eliminating the need for building laborious custom interfaces to link applications. Ideally, these tools will facilitate information sharing among multiple applications and trigger business processes from application to application. The ultimate goal of EAI is to provide the type of unified enterprise system that will handle everything from customer self-service and order entry on the front end to financials and inventory on the back end.

The Dark Side of EAI

Like all immature technologies, however, EAI tools have their shortcomings and potential pitfalls. And although the EAI revolution has taken some weight off CIOs and their staffs, IT executives looking for a quick fix will likely be disappointed. Before implementing EAI, CIOs must first be prepared to deal with the technology's potential problems: cost overruns, poor interface design and the inability to provide full system integration, among others.

First and foremost, EAI tools fall short in interface design. Despite vendor promises of easy-to-use tools, the GUIs can still be daunting. That's a problem because an easy-to-use interface for developers and users is critical to the speed of an implementation and to post-implementation user acceptance. In addition, ease of use plays a key role in determining how much support a system will need once it's up and running. And support costs money.

Although EAI has helped relieve the cost of writing interfaces in-house, support costs can still climb dangerously high, says Beth Gold-Bernstein, vice president of strategic products and services at White Plains, N.Y.-based ebizQ.net, which aggregates information and provides buying recommendations for EAI tools. However, as with other enterprise tools, the cost of the software itself is only a fraction of the total cost of implementing a package. Companies are spending five times more on services than they are spending on software when implementing EAI tools, Gold-Bernstein says.

And EAI is no quick fix, either. Because the most important factors CIOs must consider when choosing an EAI tool are their integration goals and the tools that best fit their systems, IS departments often must conduct thorough—and therefore time-consuming—evaluations of vendors while taking stock of their own application portfolios. And once a CIO chooses a vendor, he cannot necessarily count on a rapid implementation. Spano says the biggest problem he has faced in the EAI search process is implementation timetables from vendors that do not meet his urgent need for e-commerce, customer relationship management (CRM) and ERP integration. Some vendors, he says, propose integration projects with schedules measured in years, not months.

"If I don't play in the e-commerce game in the next year or two, there's no reason to stay in business," Spano says. "I've got to take a short cut. I don't have five years."

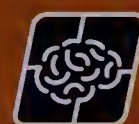
But no matter how much time or money an integration project consumes, it will likely still fall short of providing the full

We're the Brains Behind Internet Data Integration.



THE INTERNET IS EVOLVING. It began with simple, online brochureware and web servers. Next came stand-alone Web applications and application servers. Now, e-business demands a new level of intelligence for your company to compete: The Internet must be used to improve your mission-critical business processes. That means you need to bridge the Internet world with your corporate data. Introducing **INTERNET DATA INTEGRATION**, the next phase of Internet infrastructure. And it's brought to you by Cerebellum™.

For more information on Cerebellum's Internet data integration capabilities for customers, partners and resellers, please contact us at 888.862.9898, email smart@cerebellumsoft.com or visit us on the web.



Cerebellum
S O F T W A R E

www.cerebellumsoft.com



John Jalovec,
director of global programs,
Delphi Automotive Systems

system integration that has become the ambitious goal of every CIO. While EAI tools are handy for connecting a single application to another, few—if any—can provide “many-to-many” integration, or link multiple applications to other application sets under a common interface.

Such integration is important because it is virtually impossible to develop a single, unified system without it. Linking systems point by point across the enterprise can help streamline some processes, but without a single system interface and unified business processes across applications, a company will not be able to maximize its cost savings and efficiency—or ensure that its outward-facing CRM and e-commerce technologies are consistently providing customers with timely and verifiable information.

“Some vendors are putting in some simple transformation technology,” Gold-Bernstein says, referring to tools that allow two applications to share information through a common data format. “Many-to-many integration requires a higher level of transformation. Ease of use, common tooling and manageability across the stack is the No. 1 goal.”

Many-to-many integration becomes even more complicated when one of the

integration targets is another EAI tool. Companies facing post-merger or post-acquisition integration projects are often forced to develop EAI-to-EAI hookups. But EAI vendors have, for the most part, not focused on developing tools to link each other’s applications. However, if two companies have systems tied together by EAI applications, those applications need to interface with each other and serve as a point of connection between systems. Furthermore, the still-maturing EAI market simply hasn’t produced many tools aimed at facilitating the difficult process of integrating the integration tools.

“I don’t think anybody makes middleware that adapts middleware to middleware,” Spano says. “They want you to replace it. That’s definitely going to become an issue.”

Need for Process Integration

Another anxiously awaited step in the market’s maturity is the development of tools that can handle process integration. The heart and soul of EAI is data integration, converting types of data into a format that can pass between systems. But business processes—the practices a business has developed to execute actions such as fulfilling inventory and notifying customers of shipments—are still the realm of enterprise systems. While a few EAI tools will handle process integration, many are still basic data-translation tools. The charter of ERP was to automate business processes, and those processes are now an integral part of enterprise technology. EAI tools must ensure that a process inherent in Application A can trigger an appropriate response in Application B. That goes beyond simple information sharing and involves setting up triggers that will notify applications when to execute a particular action.

“The customers who fail in this arena are the ones who fail to understand it’s a process flow,” says Ed Pillard, EAI managing partner at PricewaterhouseCoopers in Edison, N.J. “What it really says is that when [customers] order a PC from [a manufacturer], they tell their supplier in real-time that inventory for that [PC’s] motherboard just got [reduced] by one. The supplier is on the hook to keep track of those decrements. When you have a fully integrated environment, you

**The still-maturing EAI market simply
hasn’t produced many tools aimed
at facilitating the difficult process of
integrating the integration tools.**



has its advantages.

Speed isn't one.

You are now able to link your internal systems and your automated business processes across the Internet with customers, vendors, and partners. And in turn, with these businesses' customers, vendors, and partners. This is how business is now— a dynamic network, a limitless stretch of business connections, all powered by the ebusiness platform from Vitria.



VITRIA

can really do that.”

John Jalovec, director of global programs in the IT department at Delphi Automotive Systems in Troy, Mich., says data transfer and process integration are almost impossible to separate because the data being transferred is moving with the purpose of executing a process. Therefore, having an EAI tool that handles both types of integration is critical.

Jalovec says he's in the process of using tools from Crossworlds Software to link SAP R/3 to a legacy mainframe system and e-commerce applications. Process integration is critical because applications linked by a data transformation tool become key to carrying out business processes and executing processes as one single application would, not as two disparate applications acting separately.

Unfortunately, Simpler Is Better

But even though EAI is not the ideal solution, many CIOs will be forced to take it on since they don't have much choice. In a sense, the challenge of choosing an EAI tool and developing a strategy is similar to the process of implementing ERP. Setting ultimate goals for the enterprise system and assessing the complexity of applications are paramount. To determine the tool that best fulfills their requirements, CIOs need to do some soul-searching within their enterprise architectures. For example, the more complex the business processes and the more sophisticated the applications, the less positive an impact EAI will have. A company that uses applications to support multiple processes and scenarios will not get as far with EAI as one that relies more on simpler, less process-intensive applications.

Diversity of technology is also a factor. IT shops that run multiple platforms or use databases from several vendors will almost certainly have plenty of custom coding to do even after an EAI tool is in place. No tool, for instance, completely eliminates the need to handwrite code in the integration process. What is important to ferret out is the degree to which a tool automates integration and how much work it leaves for an IT staff or a team of consultants to finish.

When Wayne Usie, vice president of IT for the discount retail chain Family Dollar Stores in Charlotte, N.C., was looking for an EAI tool, “most [vendors] were trying to tout that they could touch every job you have in every system and link them together,” he says.

In an effort to implement batch processing, Usie's company is using tools from EAI vendor AppWorx Corp. He essentially linked Family Dollar's retail-specific merchandising system, made by Retek, to Oracle's ERP applications and a warehouse management system from Catalyst International. AppWorx can be used to detect and recover errors in the data-processing process, thereby filling a gap left by the lack of a batch-processing management tool on the part of Retek. Usie is quick to note that his system, still under development, is relatively simple because Family Dollar customers do not buy online.

In addition, Oracle handled much of the custom integration work that allowed its ERP applications to work with Retek and Catalyst in the first place. Universal integration fixes in the form of EAI tools are not quite on the horizon yet, Usie

XML: More Hype Than Help

A lack of standards further slows EAI's acceptance

Buried within the architecture of most EAI tools is extensible markup language (XML), the ballyhooed programming language that ultimately promises to become the underlying language for all forms of data integration. “The role of XML is to be the standard data-interchange format,” says Beth Gold-Bernstein, vice president of strategic products and services for White Plains, N.Y.-based ebizQ.net. “It is going to be the lingua franca of the Internet, of B2B interchange.”

Someday. For now, though, it's more hype than help. That's because corporations and technology vendors are still hashing out standards. Thus far, only the giants in various industries have come together to develop a standard and pass it on to their suppliers and business partners.

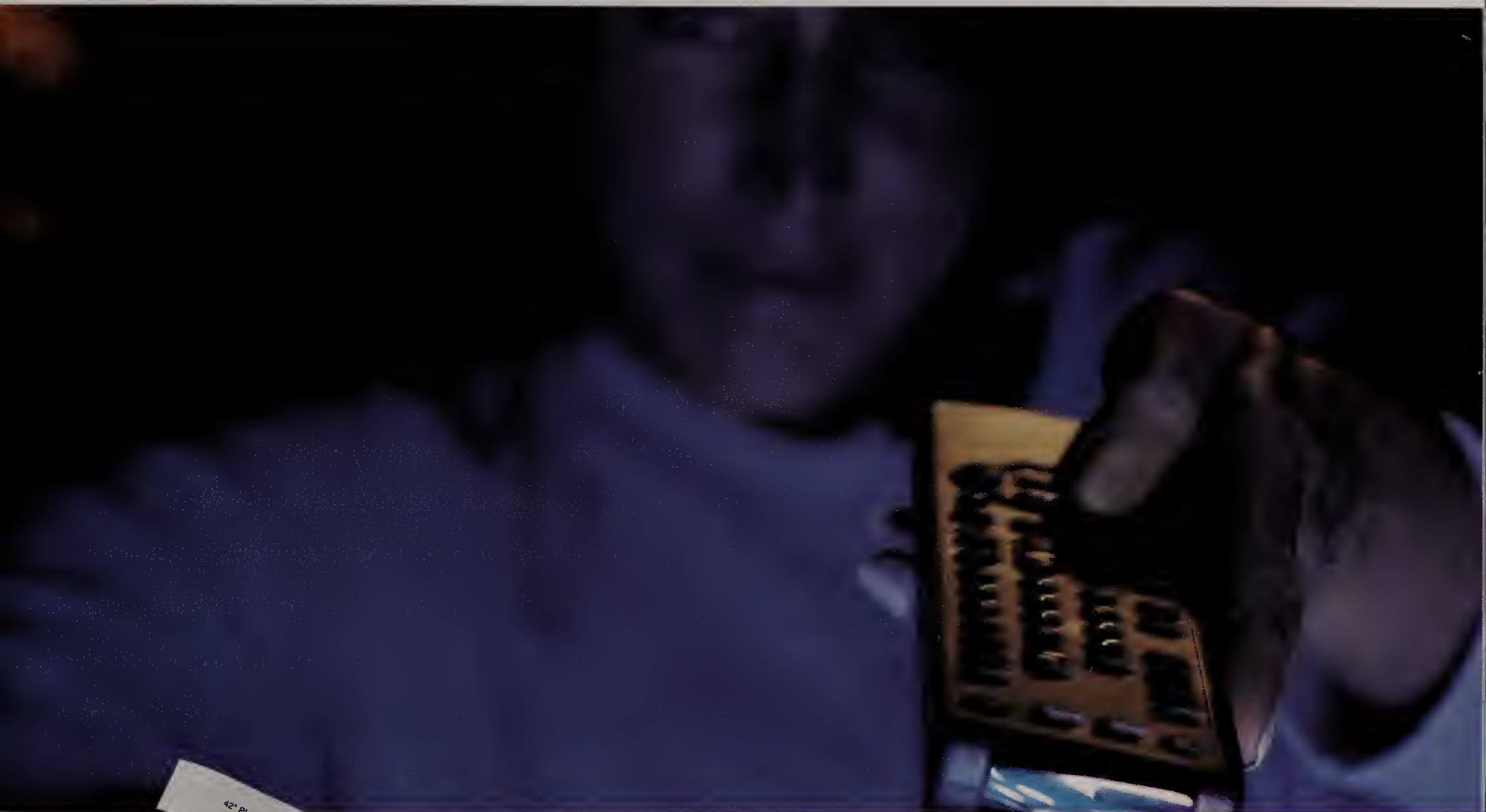
But not every company can just go along with industry flow. For example, since Kodak plays across multiple industries in its B2B commerce, sticking to one standard is impossible. Duane Cook, e-business process manager at Kodak, says his company has to subscribe to multiple standards and increase transaction volume by sending the same XML message several times until standards match between sender and receiver.

“Everyone's coming up with their own standards,” says Cook. “It's when you have to do it across an industry that you run into the difficult components.”

Of course, lots of parties want to be XML standards bearers. Standards bodies, such as RosettaNet and Microsoft's BizTalk, have set out to catalogue and standardize XML schema, but those organizations are traditionally slow moving. Some vendors—including EAI vendors—have begun to offer standards, but they rarely agree on much of anything. Corporations have had the most impact thus far, shaking out standards by industry. No one really knows which method will bring forth a unified, universal version of XML. For now, CIOs must do their best to keep their XML juggling act going.

—L. Pender

Before a new technology can change
the way people see the world,



thousands of these need to be scanned,
revised, distributed electronically, and
printed on demand.

Your client's product is ready to be shipped. But it isn't going anywhere until the instruction manual is updated and output. Can you offer high-volume, high-speed digital printing that this job demands? In black & white or color? You can if you have print-on-demand solutions from IKON. From electronic job ticketing and online order entry to document management and version control to in-line finishing, IKON has the answer. We offer the "best-of-breed" digital copiers and printers from Canon and Ricoh. We look for the best solution for your copying and printing needs, and back it with superior local service and support. After all, helping your business communicate is what we do. To understand how we can bring your business up to speed, call 888 ASK-IKON or visit us at www.ikon.com.

Canon
AUTHORIZED DEALER **RICOH®**

©2000 IKON Office Solutions, Inc.

The Way Business Gets CommunicatedSM



The problem with EAI is getting integration generic enough for anybody.

—WAYNE USIE

says. Custom integration and help from application vendors are still part of the EAI implementation process, which becomes more difficult for companies with systems more complicated than Family Dollar's. "There's more complexity in certain environments than in others," he says. "The problem is getting integration generic enough for anybody."

While EAI has its own set of concerns, it is also dogged by some of the more traditional problems that often accompany other software applications. Security is an issue, as it is with any enterprise project, but the most potentially troublesome issue is scalability. EAI tools have to scale with multiple applications, and because the technology is still a new concept, there are few reliable benchmarks for testing its scalability. CIOs, as a result, must be careful to plan for the eventuality that EAI might not keep up with a company's growth. "We can't even define what a benchmark-integration process is," Gold-Bernstein says. "Some companies have installed some solutions and found they would not scale to meet their needs."

Making Do

Ultimately, as with most emerging technologies, EAI tools should improve, but CIOs know better than to rely on the potential of technology rather than on what it offers today. Analysts predict consolidation in the market as vendors partner with each other to join the stronger features of their offerings. ERP vendors are getting into the act too. This fall, SAP will collocate facilities with several EAI vendors in hopes of developing integration tools designed to link R/3 to external systems.

There is hope, too, that trends such as online marketplaces will lead enterprise application vendors to open their often difficult-to-integrate systems, thereby relieving some of the need for EAI tools. But CIOs have heard it all before. ERP, once heralded as a savior of enterprise technology, has caused almost as many problems as it set out to solve, and EAI has the potential to ultimately be similarly problematic—despite predictions that tools will improve with time and development.

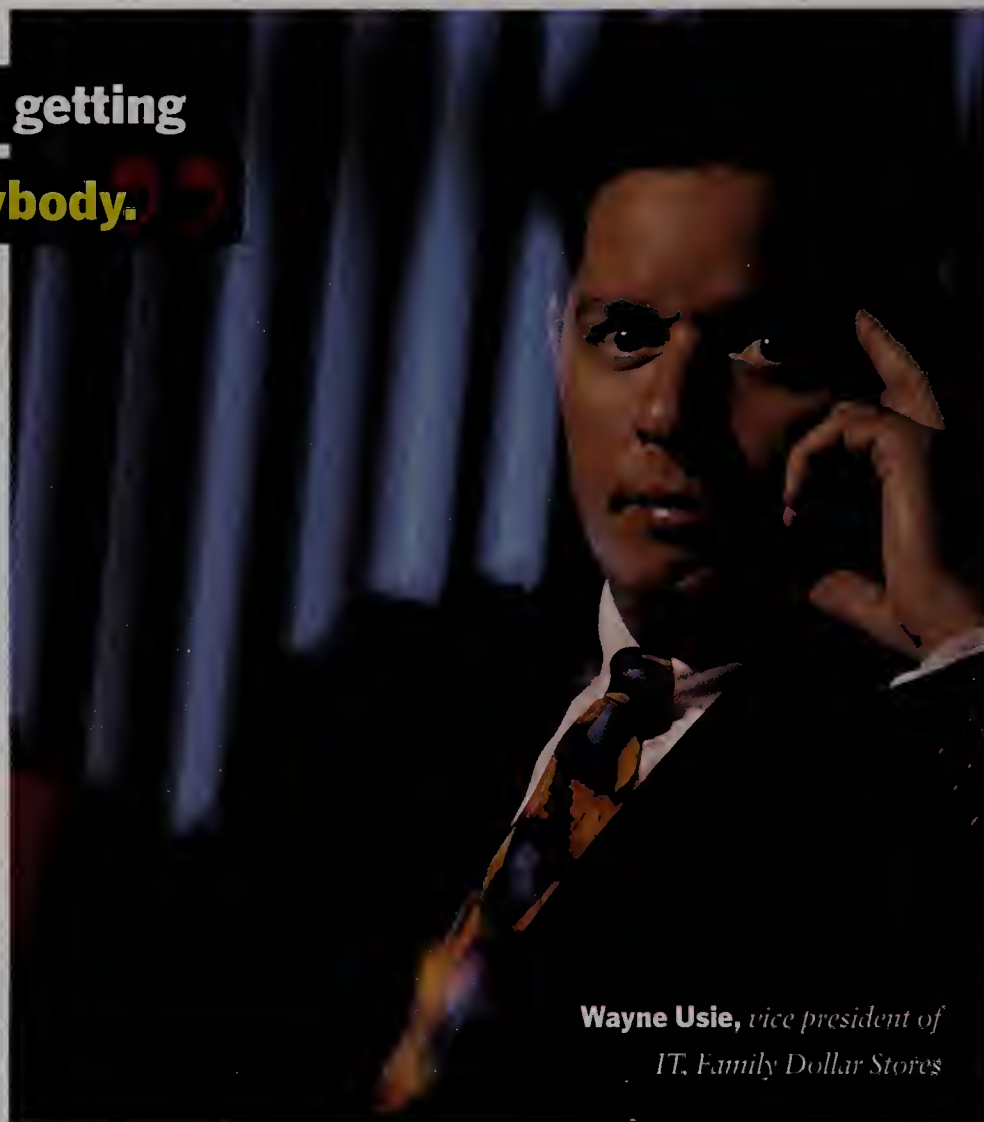
"I would characterize the [EAI] field as immature," Pillard

says. "If it were an ideal world, I'd tell my clients not to implement anything until Version 3. But it's not an ideal world." Once reality sets in, CIOs need to assess and recognize their business needs.

"The advice I would give [a CIO is to] understand the business problem you're trying to solve," Gold-Bernstein says. "The problem occurs when you don't identify the business problems well enough to recognize the tool sets that you need."

Indeed, the CIO who is not racing to pursue the Holy Grail of integration is a rare—and possibly nonexistent—breed. E-commerce pressure and the need to cut costs and streamline operations are pushing IT departments to evaluate EAI as soon as possible. For Spano, the situation is nearly dire. There is no time to wait for—or bet on—the maturation of EAI tools. When used properly and after considerable study, EAI tools can be the first step on the road to integrating the leftovers of ERP and the new applications driving e-commerce. They will not, however, be the cheap and easy cure-all many CIOs so desperately need. The path to integration through EAI is still unpaved, and the best action CIOs can take is to approach with caution. **CIO**

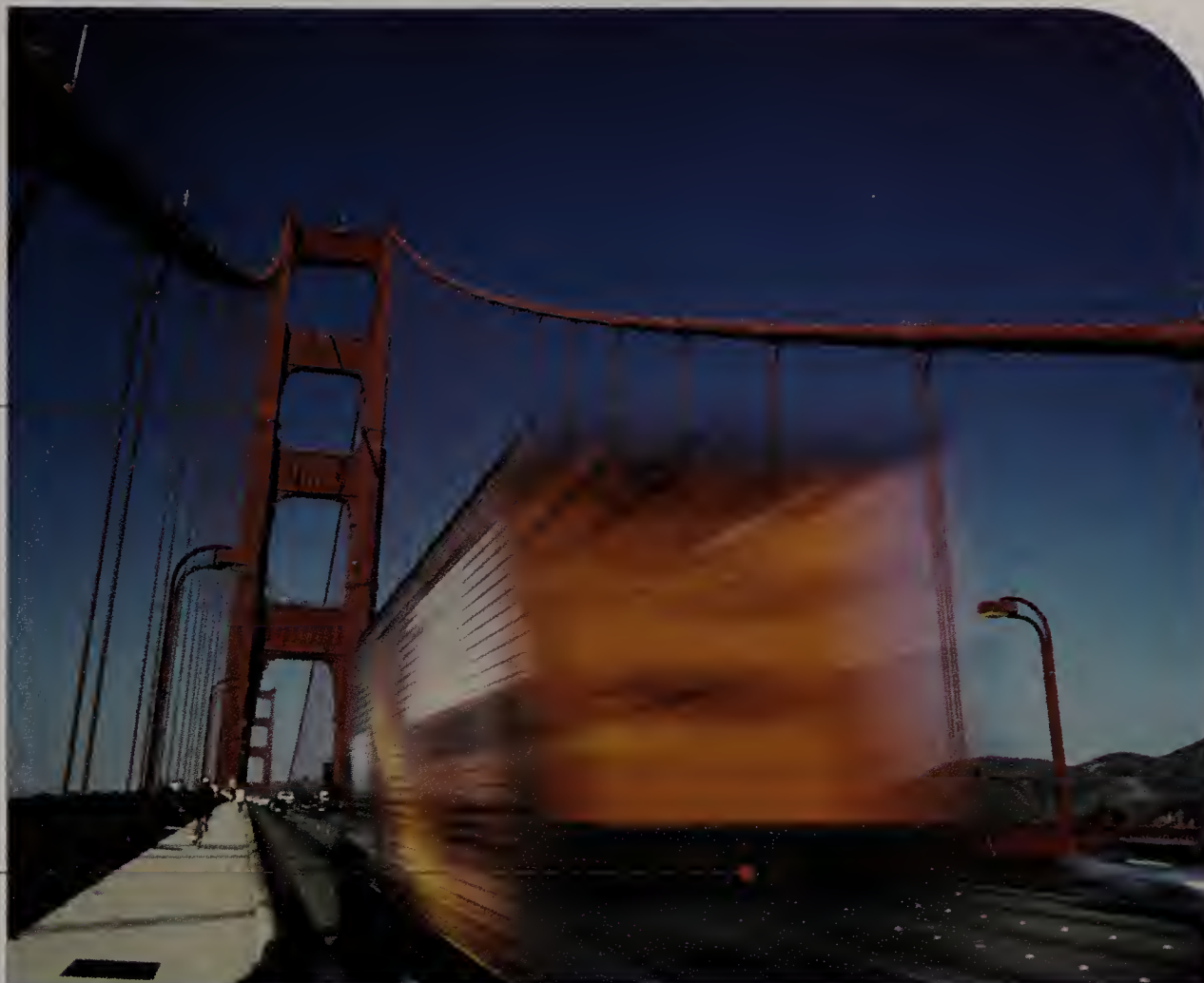
Senior Writer Lee Pender is interested in hearing tales of both EAI horror and success. E-mail him at lpender@cio.com.



Wayne Usie, vice president of IT, Family Dollar Stores

ECOutlook.com

your business information



CONNECT YOUR BUSINESS TO EVERY BUSINESS.

No new hardware.

No new software.

No new standards.

120 days or less.

Connect, integrate and exchange information with everyone — suppliers, customers and digital marketplaces — whether they use EDI, ERP, legacy systems or a simple Web browser. Now everyone can participate.



ECOutlook.com bridges the gap.

Register today for a free e-seminar and multimedia CD at www.ecoutlook.com/register20 or call 888-525-2490 x20.



ecoutlook.com

the intelligent e-business link.

"If someone tells you

"I did it in 43.55 seconds."

it takes only 5 minutes

to install up to 240GB

on the network,

DON'T BELIEVE IT."





1 Plug into AC power



2 Connect to Ethernet hub



3 Turn Snap Server on

Don Knisley, Network Engineer, US Air Force

Snap Servers are engineered for one purpose: file sharing.

That's why Don could have a Snap Server 2000 up and running on a LAN in 43 seconds! "If I had the choice of installing an NT server for network storage or a Snap Server, I'd pick the Snap Server," says Don. "It's fast, easy and the browser configuration tool is very intuitive." To read Don's story and virtually install a Snap Server yourself, visit www.snapserver.com/install today.

For a fraction of the cost of an NT file server, a Snap Server easily adds up to 240GB to your LAN – ideal for remote offices, departments or workgroups. According to a recent PC Data report, 4 out of 5 workgroup network attached storage (NAS) servers sold are Snap Servers and they are also the most awarded NAS product on the market today. So go with the industry standard. Quantum Snap Server.

Quantum®

If it's important to you, save it with us.

**www.snapserver.com
1.888.343.SNAP**



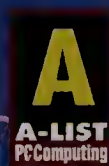
Feb. 2000



Apr. 2000



Apr. 2000



May 2000



Ease of Use

- Auto-sensing 10Base-T/100Base-TX Ethernet
- Automatic recognition of network types/clients
- Supports DHCP, BOOTP and RARP
- Configuration via Web browser

Features

- Embedded OS (unlimited user license)
- Pentium-class processor
- Ultra ATA hard drives
- RAID 5, 1 or 0
- Easily supports 100 or more clients

Compatibility

- Simultaneous support for Windows 2000, NT, NetWare, UNIX, Linux and Macintosh networks and clients across TCP/IP, IPX, NetBEUI and AppleTalk networks

Network Backup

- Compatible with Windows and NetWare backup software, including Veritas Backup Exec, Computer Associates ARCserveIT and Microsoft backup software for Windows 95/98/NT/2000

Network Security

- Integrates with Microsoft Domain Controllers or local user list

Guarantee

- Unconditional 30-day money-back guarantee, plus 3-year parts and labor

Price (MSRP)

Model 4100 (240GB).....	\$4,499
Model 4100 (120GB).....	\$2,999
Model 2000 (60GB).....	\$1,699
Model 1000 (30GB).....	\$799
Model 1000 (15GB).....	\$499



Hands Across the WATERS

Offshore outsourcing is no longer an emerging trend—it's a way of life for many IT executives. But what makes the difference between sinking and swimming when you send key projects overseas? BY TRACY MAYOR

PIYUSH GUPTA USED TO SAY HE'D NEVER SEND AN IT PROJECT OUT of house again, never mind to a different company on a different continent. A veteran IBM project manager, Gupta first struggled with distributed projects back in the late 1980s, when working on

that company's ill-fated OfficeVision development, which was spread across two continents. Later at Informix in Menlo Park, Calif., where he was a vice president of engineering, Gupta wrestled with

projects so widely dispersed that they were difficult to reassemble, to say nothing of the challenges posed by substandard programming practices and revolving-door engineers demoralized by boring work in remote locations far from the corporate power center.

"I'd done a lot of [distributed] projects in my life, and none were very successful," Gupta says. "I swore I would never give anything out again.... They'd have to be my guys working on my projects."

Then last year Gupta and his brother set out to form LiquidPrice.com, a Cupertino, Calif., business-to-consumer reverse-auction website for which Gupta serves as president and CEO. They ran smack into the realities of the millennium marketplace. LiquidPrice

Reader ROI

- ▶ Learn how to choose the right projects to ship out
- ▶ Determine how to select the best vendor
- ▶ Get tips on managing the long-distance relationship

Outsourcing

needed to develop a completely new type of website on Internet time in Silicon Valley, ground zero for the domestic IT labor shortage. Faced with such severe time and staffing pressures, LiquidPrice wound up sending its Web development offshore to an Internet development center in Hyderabad, India, run by SeraNova, a subsidiary of Intelligroup.

What changed Gupta's mind? A like-minded, culturally compatible partner that he thoroughly investigated and wound up truly trusting; turnaround times he simply couldn't match at home in a business environment where time to market can make or

outsourcing strategies at Meta Group in Stamford, Conn. "We're seeing a more educated society in offshore application development and a shift from maintenance of systems to the actual development," Engle says.

India remains the premier country of development, with five development centers certified by the Software Engineering Institute, including Hyderabad and Bangalore. But Pakistan, Northern Ireland, Israel and Middle Eastern countries are all up-and-coming destinations of choice, in addition to Mexico, the Philippines and so-called near-shore facilities in the maritime provinces of Canada.

Companies working offshore must be willing to invest time and money in building processes to ensure proper project management, effectively evaluating and training personnel, and establishing meaningful metrics to make sure projects stay on track.

Farley Blackman, CEO of StrategIM, a Burlington, Vt., consultancy specializing in offshore development, used to be director of offshore development at General Electric, a pioneer in offshore outsourcing. By 1998, the last full year he ran offshore operations for GE, Blackman managed 3,500 foreign workers, saved GE \$125 million annually

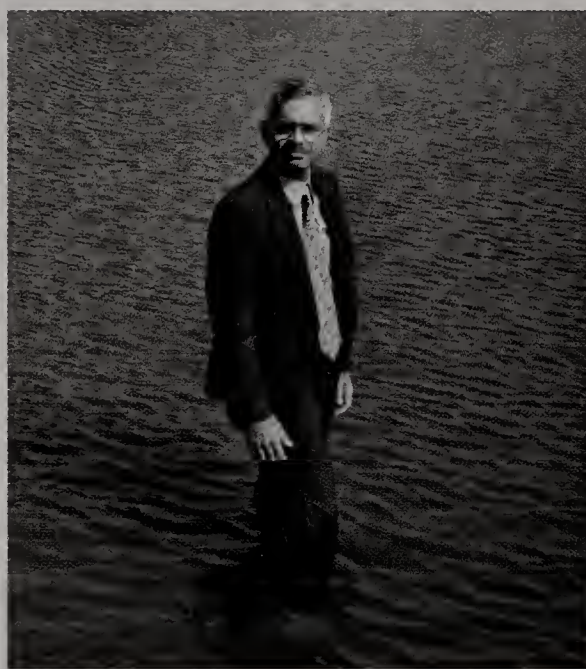
"WE'RE SEEING a more educated society in offshore application development and a shift to the actual development."

CHRIS ENGLE, META GROUP

break a new venture; and cost savings of 25 percent at bare minimum, even with unanticipated costs factored in. Oh, and after partnering, LiquidPrice, with the assistance of SeraNova, managed to develop and launch the site in an eye-popping 11 weeks. The exchange-site software engine developed in India is so successful, so malleable, that other B2C and B2B exchange providers have asked LiquidPrice to give them access to it through licensed software or as an application service-provider basis. Not bad for a company that had no intention of outsourcing offshore.

All over the country—all over the globe, rather—offshore partnerships are on the rise, spurred by the chokingly tight IT labor market in the United States, the zero-time-to-market demands of the Internet economy, the promise of cost differentials that can go as high as 60 percent and, lastly, a sizable aggregate of high-level, midcareer IT executives with significant offshore experience under their belts.

The quality of overseas labor is up at the same time the level of projects being moved offshore is becoming more sophisticated, says Chris Engle, director and practice leader of



Piyush Gupta, CEO of LiquidPrice.com,
used to feel awash in offshore IT projects.

Companies interested in investigating offshore opportunities must be able to tackle challenges in three areas: cultural, geographical and political. The very places where foreign development is hottest are also at times home to earthquakes, typhoons, floods and shaky infrastructures that can knock out communications and political instability.

and accounted for 7.6 percent of India's total software exports. Blackman knew that GE by no means had the largest domestic software budget, so why weren't other companies investing in offshore to the same degree? "People don't understand how to work overseas, and the assumed loss of control scares some companies away from offshore development," he says.

Infrastructure issues certainly can cause difficulties. One company experienced network brownouts that left U.S. executives unable to contact their offshore partner or fulfill their customer-service demands until the contractor upgraded its overseas network connections. Another chose its offshore partner partly because the vendor had broadband feeding into its T1 network—in other words, an up-to-date network infrastructure that resembled standard business setups in the United States. [Many companies don't want to be identified by name as being involved in offshore outsourcing. Why the secrecy? See "High-Seas Ghost Ships," Page 102.]

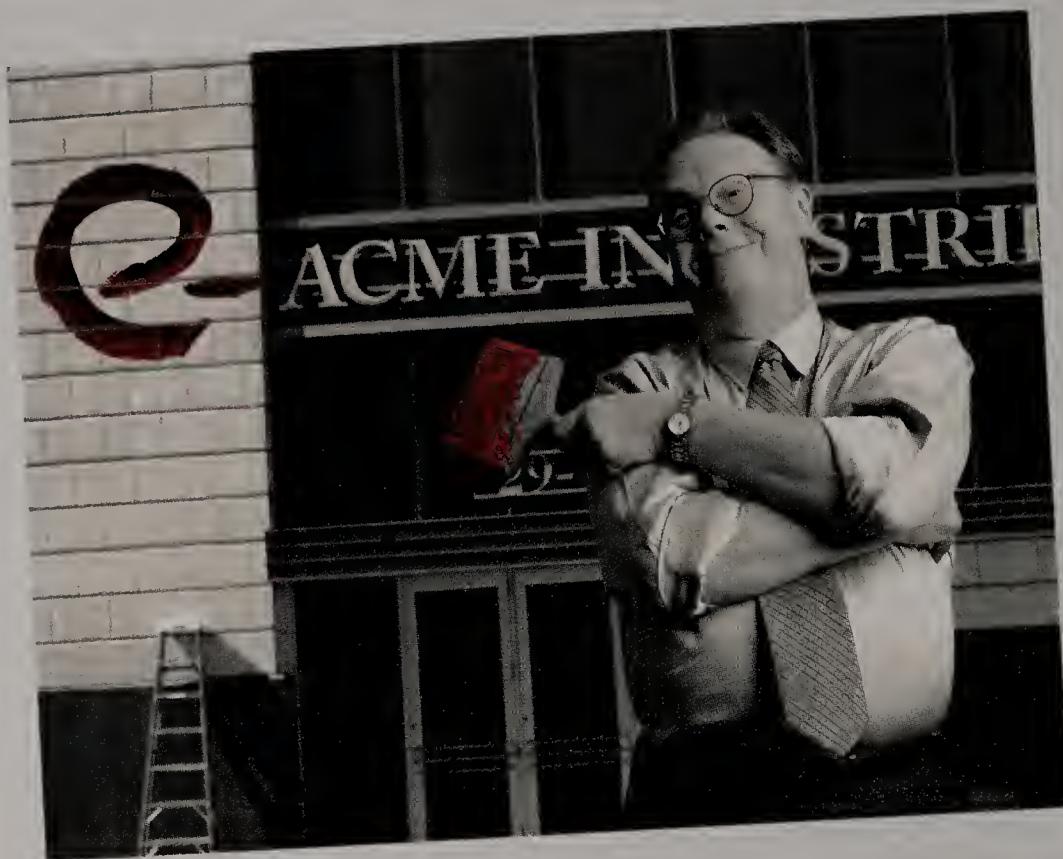
But when offshore projects go astray, frequently the reasons are poor communication or cultural miscues. One U.S. company had

STRATEGIC DIRECTIONS

Getting Ready for the Wireless Enterprise



Special Advertising Supplement



If only it were that simple.

There's more to becoming an e-business than this.

To succeed in the digital economy, you've got to do more than just put up a Web site. You've got to transform your business into an e-business.

Which is why you should talk with Unisys.

Introducing Unisys e-@ction Solutions.

That's the name we've given to our portfolio of service and technology solutions to help you interact with your customers and transact business via the Internet.

Unisys e-@ction Solutions are about understanding how your business works. And integrating Web technologies into your existing systems and applications to maximize the strengths of both.

e-business isn't a new business for us.

At Unisys, we were involved in e-business even before it had a name. Helping hundreds of clients in key industries and governments successfully transform themselves. And staying with them until the job was done.

We're ready to help your business achieve the speed and agility you need to win in the digital marketplace through Unisys e-@ction Solutions. Quickly, cost effectively and, yes, almost painlessly.

Because while becoming an e-business isn't simple, it doesn't have to be needlessly complex.

www.unisys.com/e-biz



UNISYS

We eat, sleep and drink this stuff.

Getting Ready for the Wireless Enterprise

A GENERATION AGO PERSONAL COMPUTERS jolted complex computing capability out of the glass house and onto our desks, altering forever the way we all live and work.

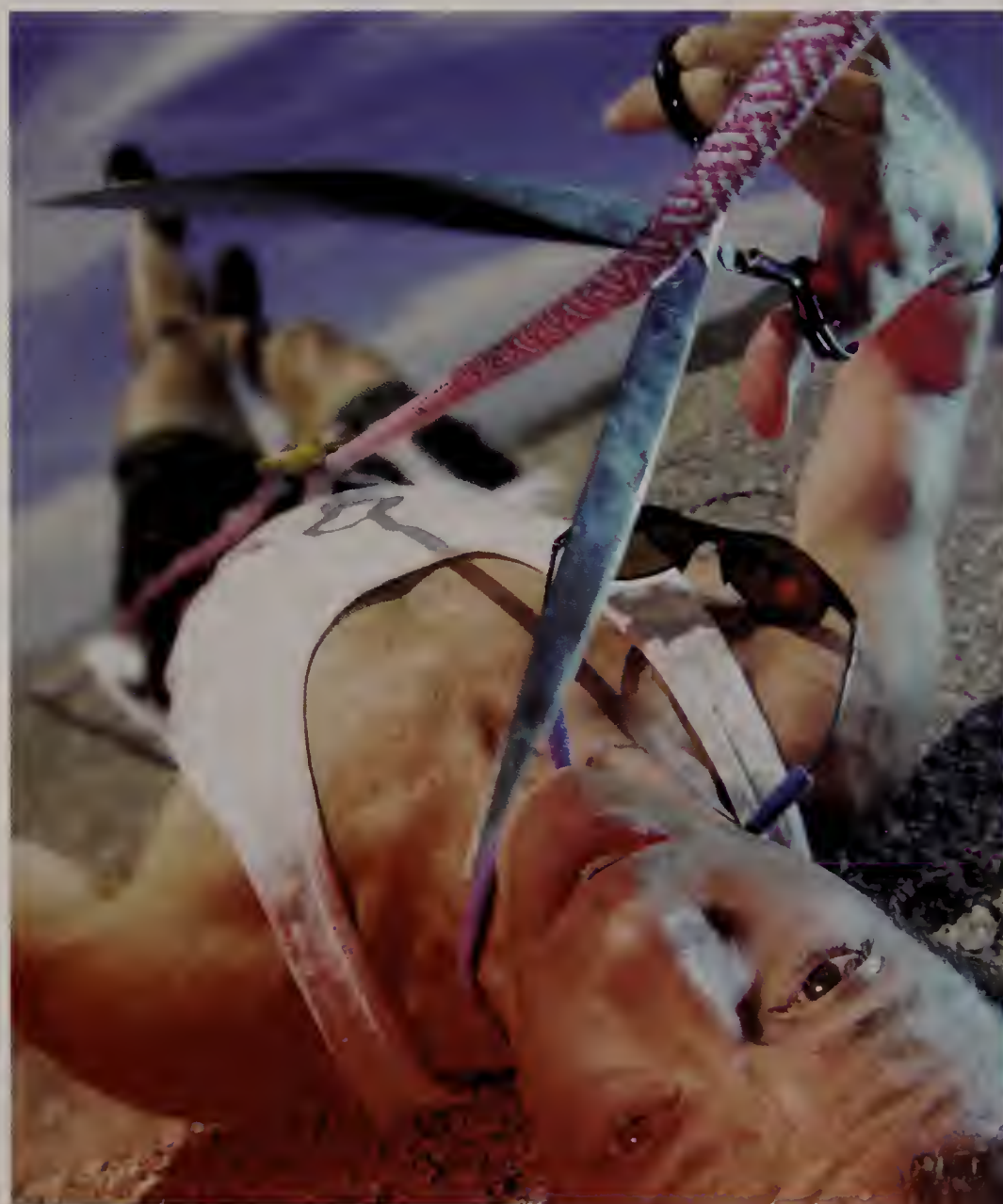
Now wireless technologies and solutions are cutting information systems' tether to the desktop, and chances are your business will be affected sooner than you think . . .

Every two seconds in the United States, a new subscriber signs up for a wireless communications service—adding up to nearly 46,000 new wireless subscribers each *day*. By the end of 2000, there will be more than 100 million wireless subscribers in the U.S. That's almost half of all people in the country who are 18 years or older.

Worldwide, market researchers tell us, there are some 300 million wireless handsets now in use. In five years, no fewer than 1.25 billion, some say 1.3 billion, will be occupying pockets and briefcases on every continent. The much-respected Gartner Group believes that 1999 saw more shipments of mobile devices than shipments of PCs and automobiles *combined*. By 2005, wireless handsets—that is, mobile phones and handheld computers—will outnumber notebooks and desktop machines by a remarkable ratio of four to one. And by 2010, predicts SRI Consulting's Business Intelligence Center, 3.5 billion people will have access to mobile phones.

Enter wireless data

Today, most wireless devices are phones handling voice communications. But that's going to change—and fast. A recent study conducted by Greenfield Online Inc. for Cap Gemini America estimates that a year from now more than three-quarters of the U.S. online population will use cellphones to send and



receive wireless data. These days, just three percent do.

Why the stunning growth? Because employers are starting to pay for their employees' wireless services so mobile employees can access e-mail and important business information.

"The use of mobile devices is close to becoming *necessity* for how we live

ture transaction data at its source will drive significant business process efficiencies," points out Brett Proud, executive vice president at Silverline Technologies, Ltd.

Providers of wireless equipment and services are doing their level best to oblige. Wireless networks are mutating into advanced infrastructures empowered to transmit voice and data signals at faster and faster speeds. Lean and lightweight, wireless phones are also mutating—into a multiplicity of digital wireless devices that communicate voice *and* data signals. Meanwhile, subnotebook and palm-top computers are being outfitted with wireless communications capability. Combined, these sleek handhelds and the networks to which they link through the ether are bringing to our fingertips the ability to access and deliver data anytime, anywhere.

Meanwhile, makers of fixed wireless networks and equipment are shipping high-performance, interoperable hardware that affordably delivers data rates that begin to rival Ethernet speeds. Suddenly, new wireless LAN applications are worth contemplating.

ment capabilities using smart pagers or souped up personal digital assistants (PDAs). Marketing wants customers to be able to order off your corporate Website from wireless handsets as well as wired PCs. All manner of traveling executives want to use their smart cellphones to access calendar apps so they can coordinate schedules.

Depending on the nature of your business, the list of reasons for which end-users will demand wireless capabilities can grow long indeed. Onsite service technicians, consultants, suppliers—and, of course, your company's customers—will want to use the little handsets they're already carrying around to do business. (For a more in-depth look at what kinds of applications are emerging in wireless-enabled enterprises, see *Unplugging the Organization*, pg. S22.)

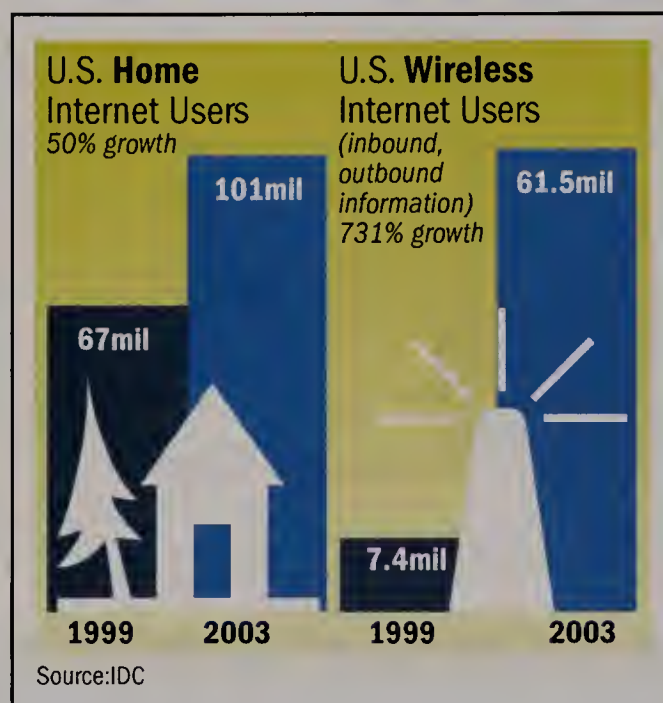
How fast you'll need to adapt to wireless will depend not only on what kind of business you're in but also whether you want to stay ahead of the competitive curve or scramble to catch up to it.

Should I care about m-commerce?

Some industry watchers believe the impact of the Internet will reach its apex with the arrival in the next few years of higher-speed wireless data services. They point to the hundreds of millions of people with wireless handsets—most of which will be linked to digital-enabled networks—who are already being sold high expectations by carriers' sleek advertising campaigns celebrating a wireless Internet.

Beyond the hype, it's clear that corporate wireless users will rely on the Internet and the standard protocols on which it works to connect to corporate intranets and extranets for access to both e-commerce and e-business applications as well as legacy apps.

There are exceptions, certainly, but for the most part if you care about e-commerce then you probably need to care about mobile commerce. (Check out *Mobilizing the Web: M-commerce*



and work, not an option or a luxury," says Steve Chuey, vice president, technology, global communications industry, Unisys Corp. "Employees of corporations will use wireless services to gain competitive advantage and conduct business more quickly and efficiently."

Mark Desautels, president and CEO of the Wireless Data Forum, agrees: "By allowing mobile workers to access mission-critical data and apps anytime anywhere, wireless becomes a compelling weapon in the information technology arsenal."

Indeed, it's not hard to see the need. There are, according to Yankee Group estimates, no fewer than 45 million mobile workers in the U.S., including telecommuters. Most of them are long comfortable with using cellphones to stay in touch with the office. Now they want to use the same kind of wireless device to get their e-mail and access the corporate databases on which so many business transactions depend.

"The ability for virtually all employees in an organization to cap-

Adapting the infrastructure

How loud is the clamor in your company as more and more users of wireless devices seek entrée to the World Wide Web and the corporate data that enables them to do their jobs? The question is not *whether* corporations must respond to it, but rather how fast can they adapt their technology infrastructures to take advantage of the competitive opportunities offered in a unplugged world.

Does my company need to go mobile to stay competitive?

Chances are the answer is "yes"—if not now then pretty darn quick.

Consider: Your sales department is eager to avoid the awkward delays that are inevitable during customer visits when sales people have to call in to get inventory information; they're looking for ways to roll out e-mail and contact manage-

Goes Mainstream, pg. S8, for more about how m-commerce will affect the future of your enterprise.)

What are some of the wireless solutions that can help my enterprise?

Today, despite promises of future high-speed, ubiquitous wireless networks based on open standards, wireless connectivity in the U.S. remains kludgy.

You'll enjoy several options if your corporate operations are located in major metropolitan areas or where there are fairly high population densities. But in-building penetration isn't always what you'd wish for, and outside of cities, geographic coverage remains spotty. Speeds are limited, too, mostly to 19.2KBps and 14.4KBps—though within a year or so, industry watchers expect U.S. wireless data network speeds to approach 30KBps, possibly even 50KBps.

You can expect the wireless data network scenario to change significantly over the next few years (to find out how, see *Wireless Protocols: Survival of the Fastest*, pg. S18.) But the pressure generated by your mobile workforce may well induce you not to wait for next-generation technologies to settle in.

Which wireless implementation issues matter?

As you consider these wireless alternatives, you'll need to begin getting your organization prepared to embrace them. Even before implementation, you'll have to make some essential decisions:

- *What kinds of users will your wireless efforts serve?* If users need wireless capability for a narrow, specific purpose—say, remotely accessing technical documentation or salesforce automation—then development and connectivity issues are easier than they'll be if you must meet the needs of traveling executives requiring regular access to a range of information sources, including e-mail, contact and calendar systems.

- *What kind of wireless network should you plan for?* Considerations include cost, service availability, coverage, reliability, quality and security.
- *What kinds of devices are best-suited to your company's needs?* (For a look at the fast-changing world of wireless gear and services see *A Device in the Hand: Wireless Services Come of Age*, story below.)
- *How should you develop wireless apps so they're integrated into current platforms and networks?* Different kinds of users can require different handset features and, of course, different information needs. This makes it tough to build an application that behaves well across different operating systems, memory and performance capabilities, screen sizes and security features.
- *What kind of training should end-users get?* Here you might be in for a surprise: some firms have found that even those without PC experience can use simple handheld apps

almost instantly.

- *Should you consider outsourcing some or all of your wireless needs?* Plenty of software solutions providers and application service providers (ASPs) have substantial experience with wireless networking issues, and can build as well as host the wireless applications that may be too resource-intensive to undertake in-house.

Until now, wireless data has moved so slowly that wireless applications were worthwhile for only specialized applications. That's changing as carriers roll out wireless data services with better coverage and faster data rates than ever before.

Wireless LANs, meanwhile, have benefited from chipset re-engineering and new manufacturing techniques that have lowered prices and boosted usability. And a new industry protocol delivers 11MBps speeds. Together, these factors are churning up new interest in wireless LAN applications.

Ready or not, wireless is coming. •

A Device in the Hand: Wireless Services Come of Age

The spectacularly inventive energy that sparked the Internet age has discovered wireless, and yesterday's niche markets are being reinvented with new network options and devices . . .

IF YOU'VE WATCHED TELEVISION at all in the last several months, you know that you don't need wires to phone home—or to connect to the Internet. Millions upon millions of cellphone users—at first accustomed to the convenience of their wireless gadgets and now often thoroughly dependent on them—are eager to take the next step: using wireless handsets to pick up e-mail, do a little banking, coordinate schedules with colleagues and reserve a flight.

So wireless alternatives that can handle data communications have begun proliferating. Just about every major computing vendor and communications carrier, from Microsoft to Oracle to AT&T to SAP AG to Palm, Inc., have launched wireless initiatives to respond to demand, both current and anticipated.

Achieving wireless connectivity

Of course, wireless services have been the subject of much hype and many of the most advanced wireless offerings have surfaced first in Europe and Asia. So it's easy to wonder—despite the breathtaking market research numbers—just how important the wireless “revolution” really is.

Where, after all the hoopla, are the real-world examples? In fact there are plenty. They include:

Unisys Helps Centertel Launch Mobile Internet in Poland

In early March of this year, Unisys Corporation delivered a WAP-based solution to PTK Centertel, the leading mobile communications operator in Poland. After the successful and speedy implementation of its WAP-based infrastructure and applications, Centertel has gone live with delivery of new wireless Internet service offerings to its mobile customers. For the first time, Centertel mobile subscribers have the potential to access Internet and corporate intranet-based communication services, including e-mail, news, stocks, weather, travel and sports, via their wireless devices.

"Centertel is one of the first Polish mobile operators to offer WAP services, which means our one million current subscribers can take advantage of the latest and most advanced technologies and services available via their mobile phones," says Zbigniew Saniewski, marketing director of Centertel. He feels that the alliance with Unisys enables Centertel to "tap our global resources to capitalize on the emerging market of mobile information services and wireless e-commerce."

About Unisys

Unisys is an electronic business solutions company whose 36,000 employees help customers in 100 countries apply information technology to seize opportunities and overcome challenges of the Internet economy.

Unisys people integrate and deliver the solutions, services, platforms and network infrastructure required by business and government to transform their organizations for success in this new era. The company offers a rich portfolio of Unisys e-Action Solutions for electronic business based on its expertise in vertical industry solutions, network services, outsourcing, systems integration and multivendor support.

For more information, go to www.unisys.com

- **NTT DoCoMO's "i-mode" phone**, which debuted last year in Japan and is attracting at least 10,000 new subscribers a day. I-mode already boasts over six million customers; 10 million will sign up by yearend.

The i-mode—with a display about the size of a business card that's available in color—uses packet technology. An i-mode phone is always connected to the Internet—no logging on as in the U.S. Some 8,500 content developers support i-mode and more than 350 companies have built Websites for it, including some four dozen banks—a number expected to triple by yearend. Thus users can not only get their e-mail and conduct banking transactions, they can also download videos and songs, check movie listings, swap photos, check train schedules, chat, buy and sell securities and more.

- **In Europe**, more than two billion short message service (SMS) mes-

sages are being exchanged each month.

- **Harris Bankcorp** (Chicago), which has launched trials of cellphone access to bank accounts. Wireless customers can get financial alerts sent to them by e-mail or voice mail, transfer funds between accounts and check account balances.
- **Brokerages** like Fidelity, Charles Schwab and Discover Brokerage, all of which now or soon will offer wireless access to customers.
- **Peapod.com**, an Internet grocery store based in Skokie, IL, which is creating wireless shopping capabilities for the Palm VII palmtop computer, to be followed by cellphone access.

For most, wireless data capability follows its wireline counterpart: first comes access to electronic mail services. Then interest often divides along functional lines: travelers want flight information, technicians want

technical documentation. Customers, as usual, want it all.

"Wireless will be pervasive in a very short period of time, impacting many business processes in all industries," observes Brett Proud, executive vice president, Silverline Technologies, Ltd.

And although demand for Internet connectivity drives much of today's push into wireless, in fact current wireless data services don't always offer Internet hookups.

At the moment, the two most practical ways to offer mobile workers wireless connectivity is via cellular networks and packet radio networks. Several kinds of services use these technologies:

Wireless phones

Compared to analog wireless cellphone services, digital wireless services offer significantly higher throughput, up to 14.4KBps. But there's a trade-off: reduced in-building penetration and less extensive geographic coverage.

For mobile employees in an area with digital data network coverage, a digital data-capable phone is valuable for its ability to notify users about incoming e-mail, displaying information about sender and subject as well as the first few lines of the message. Data-enabled wireless phones make e-mail just about as mobile as voice communications.

The Nokia 6210 mobile phone is capable of connections at speeds of up to 43.2KBps using high speed circuit switched data. Its built-in WAP browser enables 24-hour access to mobile Internet services; it can also be used as a high-speed wireless modem with compatible PCs.

The WAP-compatible Nokia 9910i Communicator, described by the vendor as a "pocket-sized mobile office," supports both voice and data services, including Internet browsing and e-mail.

CDPD

By providing a separate data channel, called CDPD (Cellular Digital Packet

Data), digital cellular networks deliver data services—including Internet connectivity in most metropolitan areas—at speeds up to 19.2KBps. In use since the mid-1990s, CDPD is offered by major carriers like AT&T Wireless Services and a number of other cellular service providers. Unlike digital circuit switched data, CDPD is “always on.”

CDPD, which leverages the unused portion of AMPS (Advanced Mobile Phone Service) cellular circuits so voice and data can share the same networks, is specially designed for cellular networks and therefore is less prone to disconnection—a problem that’s typical when placing a modem call on a cellphone. Coverage, however, isn’t as universal as basic analog voice service or some of the paging networks; these days, CDPD’s footprint covers only about 55 percent of the U.S. population.

CDPD modems are available for a variety of wireless handsets, including personal digital assistants (PDAs), palmtops, laptops and desktop PCs. There are advantages and disadvantages to each of these device types, depending on the needs of the user. The basic question to ask the about-to-be-wireless is “Do you expect to do more than send and receive e-mail, write simple memos and surf the Web?”

- Those planning to write complex documents, work on spreadsheets, or perform other desktop work likely require a laptop, even though it’s not as portable as other kinds of gear.
- If mobile tasks are limited to e-mail, simple documents and Web-surfing, then a subnotebook or palmtop computer, with its light weight and small but usable display, is a better choice. These might not be the coolest wireless devices around, but SRI Consulting points out that laptops and subnotebooks will outnumber PDAs and hybrid PDA/cellphones for years to come.
- Because PDAs are truly pocket-sized and perform well as organizer and memo pad, adding wireless data connectivity and simple e-mail

client capability makes them extremely effective as communications devices with low-end computing functionality.

GSM cellular

Organizations with facilities in Europe, Asia or the South Pacific will find cellular wireless options that are based on the GSM (Global System for Mobile Communications) standard. Although analog-based, GSM provides data speeds up to 19.2KBps, and many GSM carriers are starting to field wireless data services.

Two-way paging networks

The oldest and most entrenched of wireless services, paging networks are generally constructed atop older packet technologies (such as X.25) and leverage dedicated, proprietary infrastructures built to support basic paging and short messaging services in niche markets like salesforce automation and fleet management.

Paging networks, like the ARDIS-based network services provided by Motient Corp., deliver good in-building penetration and wide geographic coverage. Although they are not IP-

**The basic question to ask
the about-to-be-wireless is
“Do you expect to do more
than send and receive e-
mail, write simple memos
and surf the Web?”**

enabled and offer low bandwidth, some of their services—guaranteed delivery and notification, built-in error correction and, in some cases, broadcast services—remain pretty much unrivaled by newer competitors. Motient’s services are well-suited for bursty, short-message-based data and even offer some realtime services, too.

And Motient’s Ricochet, a packet radio service designed for any

portable computer that supports dial up networking (including Windows and Apple laptops as well as Windows CE devices), provides 28.8KBps service, and in one city, 128KBps service. Ricochet is limited, however, to a few large metropolitan areas.

These days, Motient operates a nationwide wireless network—the nation’s first and largest, according to the company—with both in-building and on-street coverage. The company’s eLink wireless e-mail service enables users to send and receive internet e-mail as well as manage schedules, tasks and contacts. The service can be synched with desktop organizing apps using eLink’s personal information manager (PIM) tools and the handset’s 2MB of memory has room for hundreds of messages, contacts and to-do lists.

Wireless modems

The dedicated wireless data services offered via wireless modems are typically IP-enabled and faster than paging-based or digital-cellular hybrids.

Using CDPD or Ricochet, wireless modems serve as modem substitutes, but usually without voice or paging services. Though geographical coverage is not as extensive as some paging networks, wireless modems can deliver cost-effective wireless data throughput.

Such disparity in wireless services and devices no longer matters to users.

“The ‘communications anytime, anywhere’ paradigm offered by wireless means that shopping, stock trading, banking, auctions, making a credit card payment and other types of commerce are always accessible to the consumer,” says Steve Chuey, vice president, technology, global communications industry, Unisys Corp. “For example, you will be able to walk into a store and use a wireless device to check prices against a competitor. Because of the mobility and personalization capabilities offered by mobile technology it is clear that wireless handsets will become the personal communicators of the future.”•

Mobilizing the Web: M-commerce Goes Mainstream

Just when you were getting used to e-commerce, along comes the next wave, which will take e-commerce mobile and change the rules about how we do business all over again . . .

OF COURSE, IT'S ONLY JUST BEGINNING. Appropriately enough, it's moving like a wave, building momentum and power as it moves closer and closer to your enterprise.

In Finland, 90 percent of teenagers carry wireless phones, which they use to, among other things, buy soft drinks from vending machines.

In Japan, millions access the Internet to buy, sell, chat, download music and more using i-mode wireless phones, some with color displays.

No wonder the Gartner Group believes that by 2004 at least 40 percent of business-to-consumer e-commerce transactions outside North America will be initiated from wireless devices.

In the U.S., wireless is happening a bit more slowly, but don't be fooled. According to recent survey research conducted for the CTIA by Peter D. Hart Research Associates—about one in four consumers express strong interest in wireless data services, including Internet access and online shopping. Another

30 percent say they've got some interest. Guess what? That adds up to roughly 53 million people.

Furthermore, among the wireless industry's best customers—and, who knows, they may also be your best customers—strong interest in wireless data services stands about 60 percent higher than the overall average. And business users express high levels of interest in wireless data capabilities about twice as often as personal cellphone users do.

Is it really happening yet? You betcha . . .

Electronic commerce leaders like Amazon.com, Yahoo and Barnesandnoble.com have already started offering customers access to their sites via wireless handsets. They're being joined by banks and brokerages, automobile manufacturers, computer industry stalwarts and dotcom pioneers of many persuasions. Here's a (very) small selection:

- **Microsoft and AOL** have teamed with wireless carriers to offer, respectively, MSN Mobile 2.0 and AOL Anywhere.
- **PayPal.com**, a subsidiary of Nokia, is working on a mobile payment system that enables consumers to set up an online account for making purchases, e-mailing money to another person's account or paying bills electronically from a cellphone.
- **Ford Motor Co.** and Qualcomm have teamed to put wireless devices in Ford's cars.
- **Oracle Corp.** has launched OracleMobile.com, a wireless Internet portal for WAP (Wireless Application Protocol)-enabled devices that's based on the company's Portal-to-Go technology. OracleMobile.com offers services from sites such as Amazon.com, eBay, E*TRADE, MapQuest.com, the Weather Channel, UPS and ZAGAT.com, among others.
- **SAP AG** is adapting MySAP.com to be viewable on the screens of Web-browsing cellphones. MySAP.com's corporate users customize their little screens to display the information

Everypath: a Single Infrastructure, Regardless of Device

Everypath, Inc. enables an anywhere, anytime relationship with customers, employees and partners by mobilizing realtime, complex, transactional Web content and traditional business applications for interaction with the widest array of wireless and voice devices—from PDAs to smart phones to plain old telephones.

The company's patent-pending technology enables businesses to maintain a single infrastructure regardless of what device their customers choose to access information with now—or in the future. Any application, Web-based data or database information can be rapidly mobilized for multiple devices with unmatched security, reliability and scalability, in a matter of weeks, not months. The formatting of information for delivery to each device is customized in terms of the amount of information sent to each device, the layout of the information on the device and the interaction methodology of the device (toggle-driven, hypertext links, voice command, etc).

Enhanced Mobile Functionality

The Everypath platform incorporates enhanced mobile functionality such as alerts, location-based services and wireless ads with data from public Websites, corporate intranets, extranets and enterprise applications to provide custom wireless Web and voice Web applications without having to build a separate application for each type of device. Devices supported currently include PDAs, smart phones, two-way pagers and regular voice telephones.

Privately held, Everypath has more than 50 customers and partners, including Alaska Airlines (post Aug 15), E*TRADE, Egghead, Engage, Ericsson, Fidelity Investments, Hewlett-Packard, Intel, Paytrust, PlanetRx, Salesforce.com, Sun Microsystems, Sybase, UpShot.com and Visto with over \$95 million in venture funding (post Aug 1). Everypath is headquartered in Santa Clara, CA and employs over 150 professionals. Everypath maintains offices in Boston; Dallas; Washington, DC; San Diego; Detroit; Hyderabad, India; Munich, Germany and London, UK.

For more information, please call (800) 355-1068 or visit us at www.everypath.com

Wait too long to make your website wireless ready, and your customers will let you know.



Ready or not, the wireless masses are coming. Armed with every kind of device, millions of new and existing customers will soon be demanding wireless access to your website from virtually everywhere. Shut them out, and they'll turn to your nearest wireless-enabled competitor faster than you can say "out of business."

So how do you prepare for this onslaught? Simple—just make one phone call to Everypath. Using our exclusive patented technology, we can have your website—not just a stripped down version of it, but your actual website—ready for all of your wireless customers in just a few weeks.*

Which means you don't have to gamble on which wireless platform will be the most popular, and completely rebuild your website to suit just that platform. With Everypath, every wireless platform (as well as any ordinary

telephone) can have total, seamless access to all of the transaction, commerce, and content capabilities of your website. Best part is, you don't have to change even one line of your painstakingly forged code. Instead, your website is rendered into an optimal

format that any wireless device can work with. And as you make periodic content changes to your website, those changes will be instantly updated in the website every one of your visiting wireless customers will see.

Now you can concentrate on making your site great, and leave the wireless part up to Everypath. Just visit us at www.everypath.com or give us a call at 1-888-711-8101 to speak with one of our representatives.

So either prepare your company for the inevitability of wireless with Everypath, or start preparing for something else: a questionable future.



everypath

they deem important. So, for instance, a salesperson can access a customer's account information just before a visit.

"In Nokia's vision, the Internet will go mobile, just as voice communication did," says Mauri Metsäranta, marketing director at Nokia Networks. "Services based on all of the three most important value-adding elements of information—personal relevance, location and time—can only be offered by a mobile Internet. This is why we believe in its rapid take-off."

To facilitate this kind of m-com-

merce, companies have begun adding software to cellphones that give customers the ability to search for product information and compare prices. Many vendors, including Nokia, IBM and Oracle, now offer tools—some of them free for the taking from vendor Websites—to help corporations build wireless applications that can send and receive e-mail, connect to company databases and access the Web.

"As technology continues to rapidly advance and mobile computing possibilities become greater," says

Steve Simpson, CEO and president, Extended Systems, "the need for a complete set of reliable tools becomes increasingly important to further expand the wireless information infrastructure beyond personnel computers to PDAs, mobile phones and the Internet and to provide a range of intelligent communication devices and information management solutions."

The content challenge

"Wireless already has changed the Web," asserts Robert Mesirow, vice president, conventions, at the Cellular Telecommunications Industry Association (CTIA). "In emerging markets such as China, it is allowing access to the Internet for a population that would not otherwise have access. In technologically advanced countries such as Japan, wireless is defining the Internet experience."

Clearly, it's coming fast to U.S. shores too. So if your business depends on e-commerce, then it's quite likely that your business will very soon need to address mobile e-commerce, or m-commerce.

And you need to know, up front, that e-commerce and m-commerce are not the same. A satisfying Internet browse, for instance, requires broadband speeds and higher-end displays, but wireless transactions conducted on low-bandwidth devices with miniscule display capabilities must be leaner and more focused.

"Wireless will change the Web and its uses," says Walter V. Purnell, Jr., president and CEO, Motient Corp. "Eventually people will have to decide if wavy banners are worth paying for. My suspicion is that Web communications will become very succinct and efficient."

Which means today's HTML pages—and the Websites that carry them—just won't do the trick.

Fortunately, however, you won't need to invest in a shadow information infrastructure to deliver content to wireless devices. You'll be able to leverage the same business logic and data sources in which you've already invested. What you do face, because

Silverline: Experience and Quality to the Wireless Solutions Market

Silverline Technologies offers the ultimate in strategic IT solutions—from single-problem applications to complex mission-critical solutions.

An international software solutions provider with over 12 years of experience in a wide range of industries—including telecommunications—Silverline has a successful track record for delivering high-quality, on-time, within budget, state-of-the-art IT solutions.

Silverline's specialties include e-business development, CRM implementation, legacy transformation and interaction and application maintenance outsourcing. Moreover, Silverline offers experience in the development of WAP (Wireless Application Protocol) technologies.

Silverline's worldwide clientele consists of major companies in the fields of telecommunications, financial services, education, hospitality, healthcare services and more. Silverline develops customized systems—using SEI CMM Level 4 and ISO 9001 certified processes—built to suit your specific needs.

Silverline Technologies Delivers Solutions Without Boundaries

Silverline's 1,200-plus highly qualified IT professionals are committed to delivering a prompt response and timely assistance to any system needs you may have, anywhere in the world. Silverline's high-speed satellite links, talented technical team and mature software engineering processes allow it to respond immediately to any of your crucial needs in a cost-effective and efficient way, while maintaining a high degree of reliability.

Silverline believes in developing strong, lasting IT partnerships with its clients. Our unparalleled excellence in product quality and service makes Silverline an IT partner of choice with Fortune 500 clientele and major international corporations. We believe in open communications with all of our clients, keeping them informed through every step of their project. Our ongoing reviews and audits allow us to maintain high quality products and an optimum performance level.

If your solution needs a partner with a develop-once-deploy-everywhere approach, experience in integrating handhelds, expertise with rapid application development and deployment, success interfacing to external systems and transforming legacy systems—as well as a command of CRM applications—Silverline can help.

For more information, visit Silverline at www.silverline.com



What are your challenges?



Need to manage eBusiness, CRM solutions,

Legacy Transformation, or Application Maintenance?

Silverline® Technologies delivers fast, high quality, cost effective IT solutions, supported by over 1200 dedicated IT professionals and SEI CMM Level IV and ISO 9001 certified processes. With development centers in the US and throughout the world and access to an abundant pool of skilled resources, Silverline has built a track record for successfully delivering mission critical applications to Fortune 500 and major international corporations. Our reputation for uncompromising standards and rapid application development makes us an ideal IT solutions partner of choice for clients on a local or global basis. Find out how Silverline's broad range of services and expertise can help your company master its challenges, call: (800) 29SILVER (800-297-4583).

Silverline®
Technologies

www.silverline.com

Delivering SOLUTIONS WITHOUT BOUNDARIES

Silverline is an NYSE listed company

United States • India • Canada • United Kingdom • Hong Kong • Egypt

of the limitations of wireless devices, is a reformatting challenge.

Content aimed at wireless devices typically must fit into four-row/20-character-resolution screens. When wireless devices can handle graphics at all, they have to be 1KB black-and-white bitmaps.

Data entry is an issue, too—current cellphone designs are limited to

the familiar and frustrating 10-button numeric keypad.

It's a WAP world

Someday, wireless data services—including the Internet access on which m-commerce mostly depends—will be delivered over lightning-fast third-generation (3G) networks to sophisticated devices with color screens, lots

of memory and voice-based interfaces.

But that's going to take awhile and in the interim, wireless data services will very likely be based on WAP, the Wireless Application Protocol. This network-independent standard is bringing IP, the Internet Protocol, to wireless networks and devices, thus enabling m-commerce on a grand scale.

A Glance at WAP and WML

The Wireless Application Protocol looks familiar because it was modeled on the TCP/IP protocol stack on which Internet communications are based. The difference: WAP is designed to cope with the challenges of wireless networking.

The WAP stack

This is accomplished by placing a WAP gateway at a strategic point in the request/response cycle. The WAP gateway server is located between the wireless carrier's network and the Internet (or corporate intranet). WAP gateways can be placed within corporate firewalls, within carrier firewalls or both. They manage the interface between the wireline network protocol (TCP/IP) and the wireless protocol (WAP); they also relieve WAP clients, which are very thin, of a variety of tasks—such as maintaining client bookmarks, managing its cache and so on.

When a WAP client—that is, a cellphone or other wireless device—requests a URL, the WAP gateway server decodes and decompresses the request, then sends it to the appropriate Web server as an ordinary HTTP request. The process repeats in reverse when the request gets a response.

Because WAP is built on a standard Web programming model, WAP's application layer, the Wireless Application Environment (WAE), assumes the WAP client includes a microbrowser. The WAE also comes with an XML-based markup language called Wireless Markup Language (WML).

WML on deck

WML describes content and format for presenting data on browser-equipped cellphones, pagers and

other wireless devices with very small displays, slow CPUs, limited memory capacity, low bandwidth and restricted user-input capabilities.

These physical limitations make it just about impossible to deliver to wireless devices the same richness of Web content that a PC can get. So WML strips away much of HTML's extras—particularly graphics—and

presents primarily text-based data that's been optimized for mobile devices.

WML optimizes for slower wireless data speeds, too, allowing users to map favorite Internet functions—say, looking up stock information—to specific keys in the same way that wireline phone users store favorite telephone numbers. WML also allows users to switch between making voice calls and accessing Internet information.

Since it's designed for devices with small displays, WML's user interface differs from classic HTML pages.

WML organizes information into sets of cards and decks. Cards specify one or more units of interaction (a menu, a screen of text, a form field). Cards are grouped into decks; in WML, a deck is the equivalent of

an HTML page—it's the unit of content transmission and is identified by a Web address.

So instead of clicking on Web page links, users interact with WML cards, moving forward or back through a deck; each time a user presses a key, the next card in the deck appears. Further, each WML card contains only one function, unlike HTML pages, which can contain many functions, like links and user-input capabilities.

WML supports navigation between cards and decks—its event-handling capabilities can be used for navigation or executing scripts—and offers text and image support for formatting and layout commands.

The Wireless Application Protocol Stack

Application Layer

Wireless application environment (WAE)

Session Layer

Wireless session protocol (WSP)

Transaction Layer

Wireless transaction protocol (WTP)

Security Layer

Wireless transport layer security (WTLS)

Transport Layer

Wireless datagram protocol (WDP)

Network Layer

Wireless bearers (CDMA, CDPD, SMS, iDEN, CSD, USSD)

"What's been lacking is the standard format for Internet content on handheld devices," notes Mark Desautels, president and CEO of the Wireless Data Forum. "WAP provides that critical translation and allows us to take advantage of the hardware, software and networks available today."

Conceived by a consortium that included Nokia, Ericsson, Motorola and Unwired Planet, now Phone.com, WAP has been embraced by some 450 major telecommunications, software, and hardware companies. Together, these companies' products and services comprise about 95 percent of the worldwide handset market and claim more than 200 million wireless subscribers.

As an open, free standard, WAP is available to all. Connecting an enterprise WAP Internet server to most database, e-mail, database or scheduling servers is straightforward and provides information directly to the users.

WAP's first version, 1.1, has attracted large developers—including Sun Microsystems, Microsoft and Oracle—and small ones; there are now 62,000 WAP developers, a number that's growing by 30 percent a month.

"As a starting point for collaborative development, WAP is extremely important," believes Harbinder Khera, president and CEO of Mind-Matrix, Inc. "WAP's backing by key players such as Nokia, Ericsson and others helps eliminate one of greatest obstacles to the development and adoption of wireless technology: proprietary efforts that are competing rather than open."

In Europe, hundreds of WAP services are already available, and British Telecomm thinks it'll sell 500,000 WAP cellphones in just one quarter. In Japan, more than a dozen WAP-enabled cellphones are on the market. In the U.S., where several wireless protocols compete, WAP has been slower to arrive. But the next several months will see a torrent of WAP products and services.

Whether, in the longer term, WAP

Air2Web: Marrying Internet Applications With the Freedom of Wireless

The mobile information revolution has arrived. Today, wireless devices—digital phones, pagers, PDAs and more—are changing the way people live, work and communicate. No longer are individuals chained to a computer and dependent on stacks of paper to stay informed. No longer are they required to drive to a bank or call a broker to conduct business. Make no mistake: today's business mantra is quickly becoming "anywhere, all the time."

At the center of this transformation is Air2Web, Inc. As businesses look for new ways to extend their reach and interact with customers, m-commerce (mobile commerce) is suddenly connecting people in entirely new ways. The challenge for companies entering this arena is to find ways to interact with customers and extend a brand name. Air2Web puts businesses at the fingertips of mobile users, literally.

Open, Scalable and Secure

Through an application service provider (ASP) model, Air2Web provides an open, scalable and secure solution for creating, deploying and delivering a business's branded Internet applications directly to wireless devices. Air2Web's services are unique, allowing the deepest functionality on the widest variety of devices while shielding businesses from the complexities of going wireless.

Established in August 1999, Air2Web has leveraged the knowledge and experience of its employees to marry Internet applications with the freedom of wireless. In addition to successfully launching numerous advanced technology and Internet start-ups, Air2Web's founders have built a strong management team, an experienced development staff and an advisory board consisting of outstanding leaders in related industries. Air2Web's areas of expertise include mobile computing, Internet and enterprise security, the wireless industry, telecommunications and software development.

Based in Atlanta, Air2Web is tightly aligned with all major wireless carriers and has quickly taken leading companies from the news, finance, banking, travel, transportation and auction industries into the world of the wireless Web. Air2Web's customers include leading media, finance, travel, transportation and e-commerce companies.

For more information about Air2Web, please visit www.air2Web.com

will remain prevalent remains an open question. WAP requires creation of separate, non HTML pages, called decks. Other ways have been developed to rework standard HTML pages into formats suitable for wireless devices without creating separate pages, and the growing momentum of XML standards will probably make it easier to format Web pages for different devices. But for the moment WAP rules as the most widely accepted way to optimize Web content for wireless devices and networks.

As more and more people—in their roles as consumers and employees—demand access to the Internet and the World Wide Web from wireless devices, corporate technology managers need ways to deliver it.

WAP can be used with any type of underlying wireless network architecture—WAP/WML content will work with wireless devices across the balkanized U.S., and even on the European wireless network (language issues aside), though content needs testing since each device type can render it differently.

So it liberates technology decision-makers to focus on wireless applications rather than infrastructure issues. Which means existing content can be reformatted to make all manner of e-commerce capabilities into m-commerce capabilities.

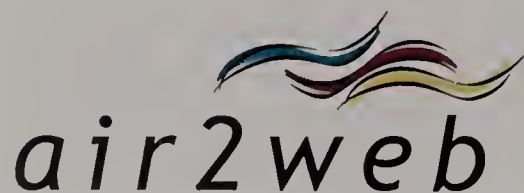
Thus to make a Website accessible to WAP-enabled wireless devices, developers must generate an alternate WML version of each page. While



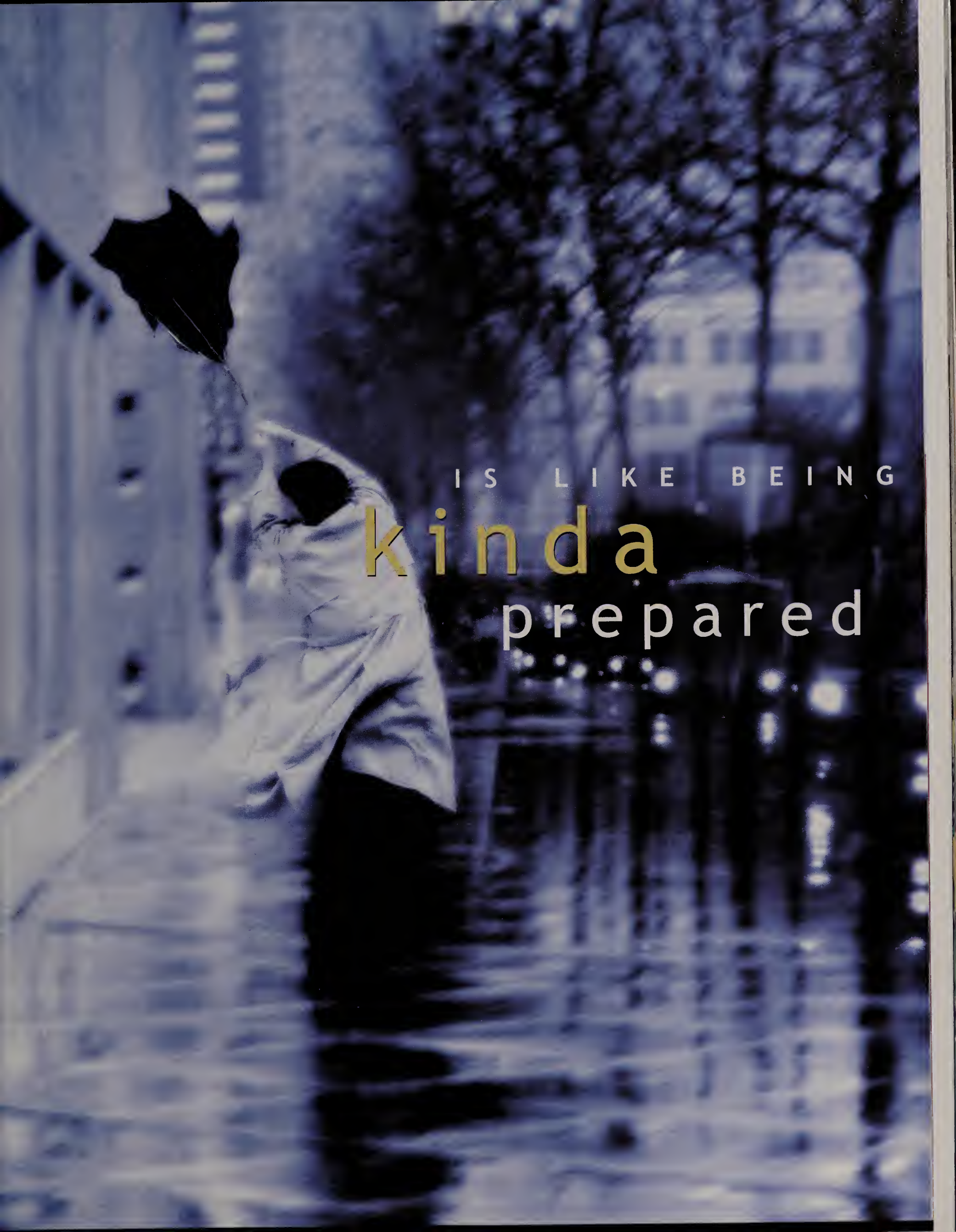
B E I N G almost i n t e r a c t i v e

Do you provide information to your wireless users that's only sorta useful? Air2Web's *Always Interactive™* technology goes beyond traditional "push" applications. It lets you actively communicate with your mobile users and conduct meaningful 2-way business transactions through any wireless carrier, network or device. We shield you from the complexities of going wireless while providing continuous, end-to-end hosting and support for your applications. Then, we take your branded wireless applications and optimize them for maximum functionality on every wireless device. Don't give your mobile users too little too late. Give them the information they need, where and when they can use it with Air2Web-powered wireless applications.

Air2Web: Always Interactive.



For a free copy of our booklet,
A Roadmap to Wireless. The State of the Technology.,
visit air2web.com/CIO



IS LIKE BEING

kinda

prepared

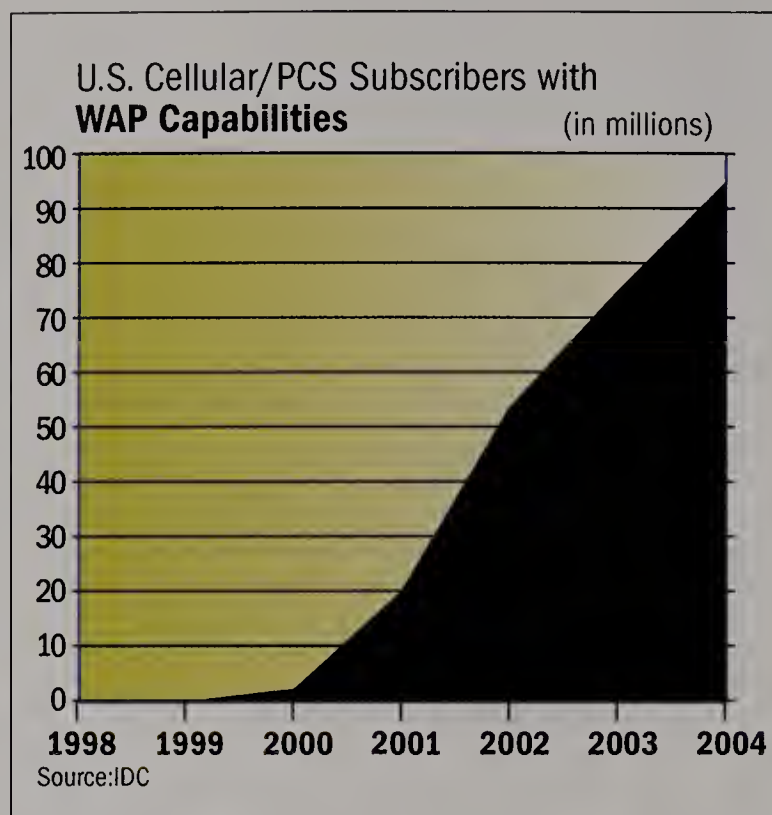
this requires additional coding, it's fairly painless, since most query tools and scripts used for retrieving and presenting data on HTML pages are easy to modify with WML for wireless devices and networks. For large-scale efforts, though, enterprises want to be able to author content in multiple markup languages, so vendors have begun offering transcoding, a kind of middleware built into Web application servers to help developers generate WML script from HTML.

A question of priorities

CIOs and technology managers need to balance the benefits to the company of such mobile access to Websites and corporate data against the cost of developing and managing it.

Management, at least, is already getting easier. Systems management giant Computer Associates, among others, is releasing a wireless management module for its UniCenter product.

Deciding which apps are worth taking wireless is a bit tougher, though eventually the demand will be so great for many businesses that the



question is not about *whether* but rather *when* and *with what* priority.

Still, there's the immediate matter of identifying worthwhile content and functionality and reshaping it for wireless usability and navigation. Remember that wireless users can see only small amounts of information at a time, and scrolling forward and

backward is difficult. For many wireless app developers, the solution is, first, figuring out what's really essential, and, second, relying on quick menus and pick lists. The trick to this is putting yourself in your users' shoes, which might not be as easy as it sounds, but is, inevitably, a very valuable experience.

Perhaps results of a recent (May, 2000) survey by San Francisco-based Telephia offers some inspiration: 2,000-plus wireless data users

were queried to determine what software, books and airline tickets are most frequently purchased over the Web with wireless devices. The wireless applications that attract the most interest include sending and receiving e-mail with attachments, Web browsing and (ta-DAH!) accessing employers' networks/servers. •

SolveIT.com—the Picture Perfect Platform for Connecting Products and Services

In the world of wireless technology, the volume of information about products and services can make it cumbersome and extremely time-consuming to research products and services and develop the optimal solution. Now there's a time- and money-saving way for you to solve your IT problems—SolveIT.com by MindMatrix, Inc. By combining solutions with industry resources and patent-pending tools and processes, we provide an unbiased source of information to help solve your IT problems.

SolveIT.com is an IT project development platform that connects hardware, software, services and industry knowledge through interactive solution architectures. Products and services from hundreds of major manufacturers—including Compaq, Ericsson, Hewlett Packard, Lucent and NEC—are linked together in actual diagrams to visually portray the solution to an IT problem. With SolveIT solutions as their starting point, IT professionals gain a better understanding of their solution options and choose the products and services that best meet their needs. It's like a builder showing you pre-designed blueprints for a house. You choose the make and model of the fixtures for each room based on your specifications. The end result is a home tailored to your needs.

Register Free, Find Solutions by Industry

IT professionals can register on SolveIT.com for free and find solutions organized by industry, including warehousing, transportation & logistics, utilities, retail, healthcare and more. Advanced functionality includes the ability to send requests for information and/or quotes directly to vendors and system integrators, a product comparison tool and a collaboration tool for project development among team members or across multiple locations. Additionally, the site gives users direct access to industry experts, tech support and the most recent industry trade news in an ad-free online environment.

"We have created a complete communication and project development platform for the IT industry," says Harbinder Khara, founder and president of MindMatrix. "And because it's completely unbiased, users can come to SolveIT and be comfortable knowing that the solution they develop is the right one for them."

For more information, visit www.SolveIT.com or the MindMatrix corporate site at www.MindMatrix.net

**Say you have a wireless and mobile computing IT problem.
Where do you go to find products? Services? Information?**



**What about complete Solution Architectures?
Go online to SolveIT.com**



Register for free • View solution architectures that fit your needs • Find hardware, software and integration services that apply directly to your solution • Send RFIs and RFQs • Collaborate with peers and experts in your Personal Space • Research related articles, white papers and other information • Compare product features and applications • Participate in public User Forums

Solve  com
Be a Part of the Solution

Wireless Protocols: Survival of the Fastest

Wireless data services, especially in the United States, remain slow and spotty. But not for long. Nothing motivates like demand, and millions—even billions—of people want to speed things up . . .

MOBILITY HAS BECOME MAINSTREAM, and mobile data is running behind. At the moment, wireless data services in the United States struggle along at 14.4KBps or maybe 19.2KBps. A few cities get limited services at 28.8KBps; one has just gotten a 128KBps service.

This is about to change. Industry watchers eyeing the mobile data horizon see speeds that will, within a couple of years, enable fast large file transfers, downloads of full-motion video, even video conferencing. There are plenty of questions, though, about which protocols will carry us into this speedy future and how we'll get there.

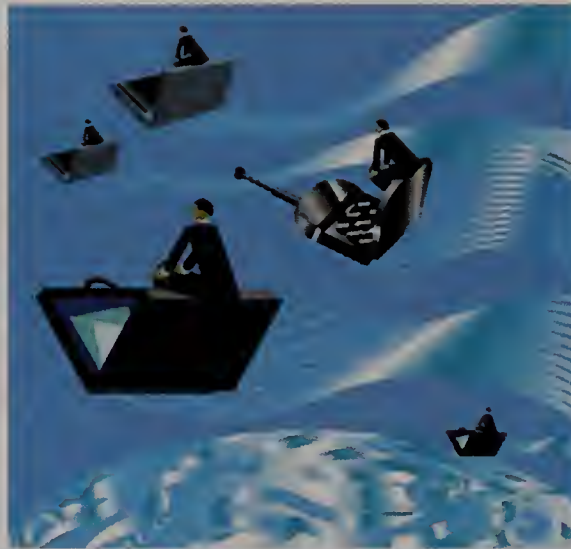
As usual, the starting point is a weedpatch of competing standards and technologies. Some say wireless service in the U.S. is so fragmented because the Federal Communications Commission originally sold separate digital wireless licenses in dozens of markets, mainly to generate income for the government and/or (depending on your point of view) to foster competition.

In Europe and Asia, by contrast, one standard for cellular voice networks—GSM (Global System for Mobile Communications)—prevails, enabling users to roam widely, benefit from lower connectivity costs and handset prices and avoid paying for the calls they receive on wireless devices. Few wireless services in the U.S. are based on GSM, and those that are use a different frequency than offshore services.

Where, then, do we go from here?

A patchwork of protocols

To improve and expand their networks, last year wireless carriers spent an estimated \$17 billion. Success will likely go to those carriers nimble enough to quickly put together open, flexible, packet-switched network architectures. Because these networks will be packet-based rather than circuit-based, operating costs will be lower, since carriers can boost capacity without increasing spectrum.



To improve and expand their networks, last year wireless carriers spent an estimated \$17 billion. Success will likely go to those carriers nimble enough to quickly put together open, flexible, packet-switched network architectures.

Packet networks will pay off quickly because carriers don't need to dedicate one circuit for each call. One carrier estimates that a megabit of data costing 37 cents to transmit in 1998 will, thanks to the efficiencies of packet technology, cost only 10 cents to transmit in 2002 and a mere 4 cents to transmit over the forthcoming third-generation (3G) networks that will be in place by 2004.

Yet there has been no agreement in the U.S. about which wireless technologies should be adopted as open, industrywide protocols. Some

analysts expect that, at least for the next few years, wireless interoperability will be achieved in the U.S. by means of multiband phones and devices that will operate on the several currently prevailing U.S. wireless protocols, chiefly:

- **AMPS** (advanced mobile phone service),
- **CDMA** (code division multiple access),
- **TDMA** (time division multiple access).

This kind of multiband capability, along with newly emerging network-independent protocols such as WAP (Wireless Application Protocol) and WML (Wireless Markup Language), will act as a bridge to 3G wireless offerings.

Making IP mobile

Over the short term, WAP-enabled devices will dominate the wireless data world because WAP gateways can be expected to work over most existing mainstream networks and because WAP is designed to operate according to the Internet Protocol (IP).

Indeed, WAP is expected to be so prevalent that some major vendors are developing an open industry frame-

work to ensure for secure, mobile electronic transactions via WAP-enabled devices. Nokia, Motorola and Ericsson have launched a joint project to create the Mobile Electronics Transactions (MeT) technology, which will be based on WAP as well as other industry standards, including WIM (Wireless Identity Module), to specify the security element used, mobile PKI (Public Key Infrastructure), to serve as the security framework, and the Bluetooth standard, for local communication. The MeT effort will initially focus on GSM, but will

eventually include other protocols, including CDMA.

WAP is a sign of things to come. IP is the data communication standard on which the Internet is built, and the Internet has become the keystone of corporate data communication, so it's also destined to become the foundation on which everyone's wireless data efforts will be built.

Thus standards bodies and industry groups are working to strengthen the bond between wireless technologies and IP, and between today's kludge of wireless networks and the future's 3G. Their efforts are producing interim standards—sometimes called 2.5G—that bring IP to wireless networks, including:

- **GPRS** (general packet radio system), a GSM/TDMA standard under development that will handle less time-sensitive applications, such as Web-browsing and e-mail, delivering data rates as high as 171KBps if all available bandwidth slices are used simultaneously.
- **EDGE** (enhanced data for global evolution), which will hike GPRS data rates to 384KBps in wide-area networks, bringing more bandwidth-intensive applications to wireless networks.
- **1XRTT**, which brings IP capability to CDMA networks, maintaining existing CDMA protocols while employing faster signal processing to generate peak data rates of 144KBps.

By the end of this year, trials of wireless packet networks will be underway, and commercial deployments will launch a year or so after that, beginning a new age in which wireless and wireline communications merge into a single, Internet-based global network.

Getting to 3G

What does 3G mean? Briefly: with 3G, anything wireline can do, wireless can do. Specifically, third-generation wireless networks will seamlessly pass calls at speeds of up to 2MBps across formerly incompatible networks, delivering seamless roaming and universal coverage.

Proponents believe 3G will trigger new opportunities for wireless broadband content and applications, promising not only superior voice quality but also data services supporting video and multimedia content that can be sent to laptops, handhelds and smart phones. That means worldwide no-hassle voice-and-data coverage.

Between the promise and the reality of 3G, however, lies a standards battle. Carriers know they need to bring wideband capability to wireless, but they're reluctant to forsake network technologies in which they've invested heavily, so the skirmishes have begun.

The referee is a United Nations-related standards group, the International Telecommunication Union,

which refers to 3G as IMT-2000. Under formal consideration are five standards, including CDMA, TDMA and frequency division modulation access technologies. But at the moment there are just two contenders, both of them CDMA wideband standards:

- **cdma2000**, favored by the CDMA faction, has a chip rate of 3.6864 MBps and supports synchronous operations.
- **W-CDMA**, favored by GSM advocates, has a chip rate of 3.6864 MBps and supports both synchronous and asynchronous operations.

Trials of 3G networks are several years off in the U.S. but may occur as early as next year in Japan, followed by European trials in 2002. •

Motient's eLinksm Wireless E-mail Service Keeps You Connected

Motient Corporation is two-way information in motion. Companies of all sizes—Fortune 1000, transportation fleets, field service organizations and mobile professional—utilize Motient's solutions on a daily basis to relay critical information in real time.

Need to keep connected to your email? With Motient's eLink wireless e-mail service, your e-mail goes where you go. Using the Rim 850 Wireless Handheld™ device (featuring a 31-key keypad and weighing only five ounces), eLink places the power of e-mail at your fingertips.

Here Are Just a Few of the Things You Can do With eLink:

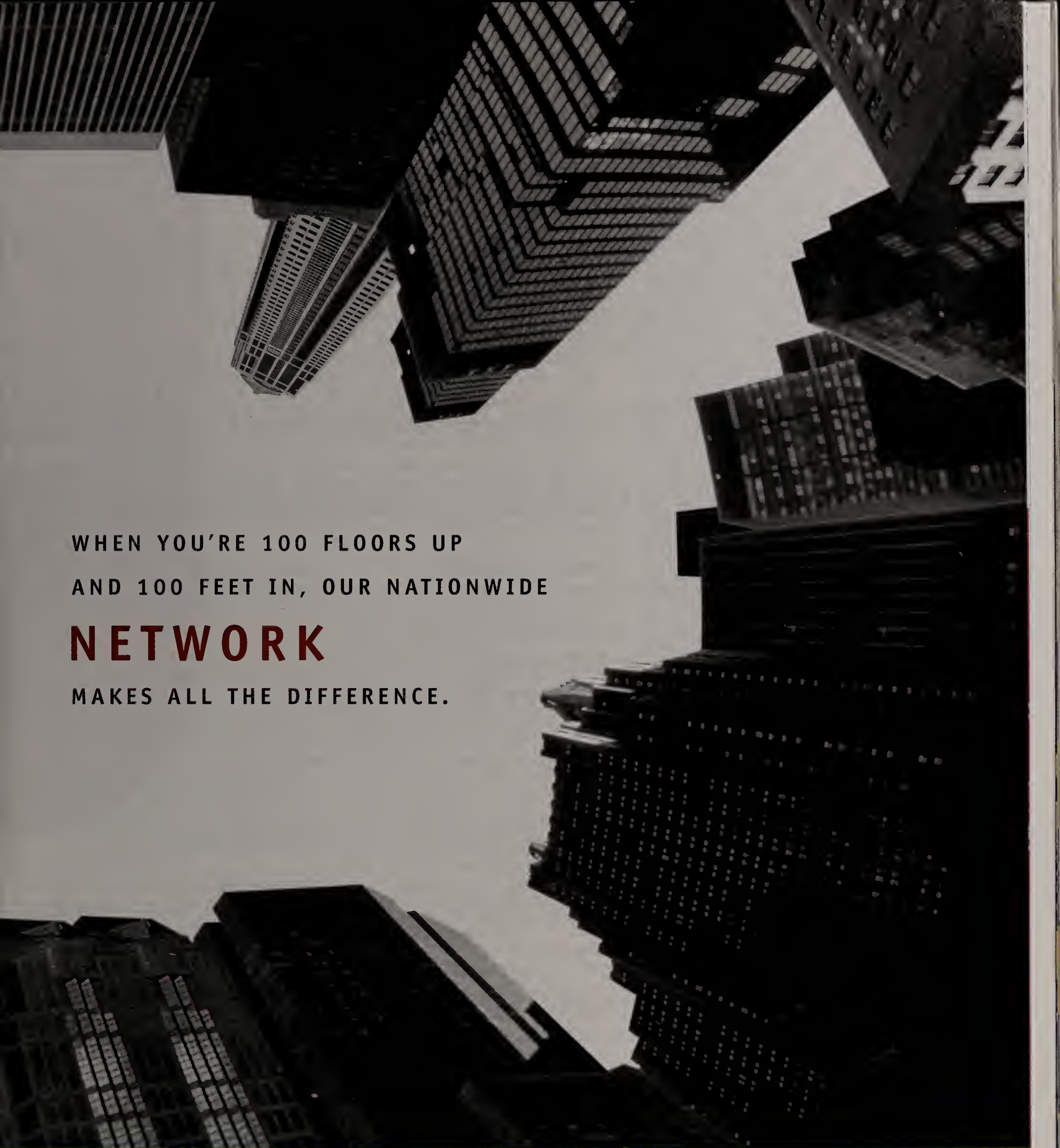
- Send an e-mail message to your coworker while attending a meeting
- Receive e-mail en route to the airport
- Notify a client you're running late because the cab is stuck in traffic
- Fax a business associate from the road
- Update your calendar while away from the office and your PC
- Add a new contact to your address book
- Send e-mail to your family so they know you arrived safely
- Receive a numeric page as well as a message dictated to an operator

Of course, the critical component in any wireless solution is the network. Motient owns and operates an integrated terrestrial and satellite network that stretches across North America. The Motient network combines the nation's first and largest two-way wireless data network with satellite communication—each month, millions of messages safely travel the Motient network. Indeed, the Motient wireless data network sets the standard for delivery and response time in the wireless industry. Motient guarantees the availability of the network and delivers the most comprehensive service offering for nationwide connectivity. Its suite of products and services allow executives and mobile professionals to access information from virtually any location, thus boosting productivity and profitability. Whether wireless e-mail or mobile messaging, Motient Corporation is the wireless data service provider of choice for the e-business environment.

For more information, go to www.motient.com

Considering a
wireless
application?

With Motient's wireless data network, you'll stay connected, even when you're deep inside a building. Because our network reaches everywhere your wireless information needs to go. Motient's national footprint is the industry's most extensive. So you can depend on reliable, enterprise-wide connectivity no matter what your mobile application. From sales force automation and field service support to wireless email, CRM or ERP—Motient can wirelessly enable your most critical business applications.



WHEN YOU'RE 100 FLOORS UP
AND 100 FEET IN, OUR NATIONWIDE

NETWORK

MAKES ALL THE DIFFERENCE.

For the broadest national coverage, the best in-building penetration and the most reliable wireless data service, remember: the network makes all the difference.

To learn how Motient can help make your wireless application a reality, call 1-800-872-6222, ext. 2178 or go to www.motient.com.



©2000 Motient Corporation

Wireless Data: Why it's Happening

Today, there are half again as many wireless phone users in the U.S. as those with unique IDs accessing the Internet. Soon many of them will be equipped with microbrowsers and Internet access capabilities. That's a significant customer base. If the existing Internet content providers and e-tailers don't want to attend to their needs when mobile, others will quickly step into the breach.

But it's more than simply better marketing that makes the time right for wireless data. A number of very important developments ensure the future of wireless data:

- **Improved networks.** With digital networks, circuit switched data is enabled without the need for a special modem, easing access.
- **Big-bucket rate plans.** It's easy to understand the advantage of 5-cent minutes over 35-cent minutes.
- **Hardware improvements.** The new crop of devices are intuitive and effective.
- **Better applications.** Horizontal applications will be offered on all types of devices, without need for specialized support.
- **Positive feedback.** There are reasons carriers are launching major marketing campaigns: millions of subscribers.
- **Competition.** Nearly 60 percent of the U.S. population can choose from among five or more service providers.
- **Mobile throughput today: virtual parity.** Networks speeds are close to wireline modem speeds.
- **Throughput tomorrow: advantage wireless.** Over the next five years, wireless networks will migrate to speeds enabling access to virtually any type of Internet experience, anytime, anywhere.
- **The data market: application-driven.**

A whole lot more than mere marketing has brought wireless data to this point of national attention, and it is for those reasons that wireless data is for real this time.

The wireless data industry will be convening at the largest and fastest growing wireless Internet show, CTIA WIRELESS I.T. 2000, on October 16-18, 2000, in Santa Clara, CA. For more information, please visit www.wirelessIT.com

Unplugging the Organization

Going wireless is a tall order, but for many the market momentum—and the competition—leave little option. The good news is that there's all kinds of help.

WIRELESS COMMUNICATIONS affect organizations across the entire spectrum of business and computing activities. Some companies have dealt with the challenge of going wireless by envisioning a hierarchy of wireless apps, creating the order in which they will be developed and implemented.

Typically, that hierarchy looks like this:

- **First, the basics.** These include e-mail, contact management, and calendaring applications.
- **Next come outward-looking apps** oriented to customers, suppliers and investors as well as employees. This is when the Web content and the corporate intranet and extranet are adapted to wireless devices and networks.
- **Finally, the business circle is completed** and mission-critical enterprise applications (inventory management, order management, logistics and salesforce automation—go wireless.

Fresh opportunities

In many cases, the wireless applications that will generate the greatest payback will be obvious—mostly because they fit into your hierarchy and are, essentially, a reworking of wireline apps into wireless mode. Many of the early popular wireless apps—in banking, stock trading, salesforce automation, inventory control, call management—do this.

But wireless technologies also offer fresh opportunities for applications that are beyond the reach of wired information systems, and these are only just starting to be explored and exploited.

Location and tracking

Web-enabled wireless location and tracking systems, for instance, are much less expensive than the costly satellite-based systems on which many transportation and shipping companies currently rely. These systems take advantage of cellular-derived location information, which the Federal Communications Commission requires to help locate people who make emergency 911 calls and which must be in place by October 2002.

This same cellular location tracking requirement creates other applica-

tion opportunities, too, notably for wireless Web advertising aimed at customers in the advertiser's neighborhood—as in “Need to drop off your dry cleaning tonight? Take the next left and come to Acme Cleaners!”

Wireless apps that do not necessarily lean on the Internet also have a rich future.

Equipping salespeople or support technicians with a single-function wireless device ensures application security and control.

Telemetry

Then there's wireless telemetry applications, in which remotely-located wireless devices measure conditions or control machinery without human action or intervention.

Wireless telemetry systems can transmit and receive any kind of information that can be digitized, taking advantage of underutilized cellular control channels (rather than voice channels) to transmit small packets of bursty data, the same way roaming cellphone users register with their carriers when they move beyond their service area. Little bandwidth is needed, and airtime costs are minimal. Among the most

Plan to attend
the fastest
growing show
serving the
fastest growing
industries

CTIA WIRELESS I.T. 2000

WIRELESS | BLUETOOTH | REMOTE ACCESS | INTERNET | MOBILE COMPUTING

October 16-18, 2000 Santa Clara Convention Center Santa Clara, CA, Silicon Valley Central

WWW.WIRELESSIT.COM

Wireless Data Mobile Internet & Handheld Computing!

KEYNOTE SPEAKERS

Day 1: **Dennis Patrick** *President, AOL Wireless*

As President of AOL Wireless, Mr. Patrick is responsible for AOL's wireless strategy and operations, including new initiatives and partnerships.



Day 2: **Dr. Eric Brewer** *Co-Founder & Chief Scientist, Inktomi Corporation*

The person most instrumental in establishing the Net's conceptual framework—named by the Industry Standard.



Day 3: **Paul Gross** *Senior Vice President, Personal Services and Devices Group, Microsoft*

Mr. Gross manages the development of Exchange, BackOffice, and Microsoft's Internet platform and the mobile devices division. He is responsible for delivering the messaging and collaboration technologies and services that enhance users productivity.



Hosted and Produced by



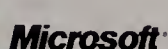
Co-hosted by



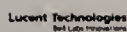
Show Partners



A.M. OPPENHEIMER INC.



Show Sponsors



The **#1**
Wireless
Internet
Event!

promising uses for wireless telemetry: residential and industrial security, agriculture and building automation.

Wireless LANs

Most current discussion of wireless capabilities centers around meeting the needs of mobile employees and customers. Often, however, wireless technology can also serve those who aren't going anywhere. These fixed wireless networks can be cost-effective alternatives to slower and more expensive wireline options. Wireless local area networks (WLANs), for instance, now boast speeds up to 11Mbps and can operate as extensions to wired Ethernet networks.

"The wireless LAN will make it easier to move around, change physical location and still maintain a seamless network," says Brett Proud, executive vice president, Silverline Technologies, Ltd. "Whether it's on Wall Street or a factory floor, access to resources will be more reliable."

Bluetooth

Another new technology standard, Bluetooth, offers new kinds of convenience for both fixed and mobile users.

Bluetooth is radio that can connect all manner of machines, from PDAs to printers, as long as they're within a 10-meter range. What's more, Bluetooth-ed devices can be bundled into little networks, dubbed piconets and built into other kinds of machines, like cars and kitchen appliances.

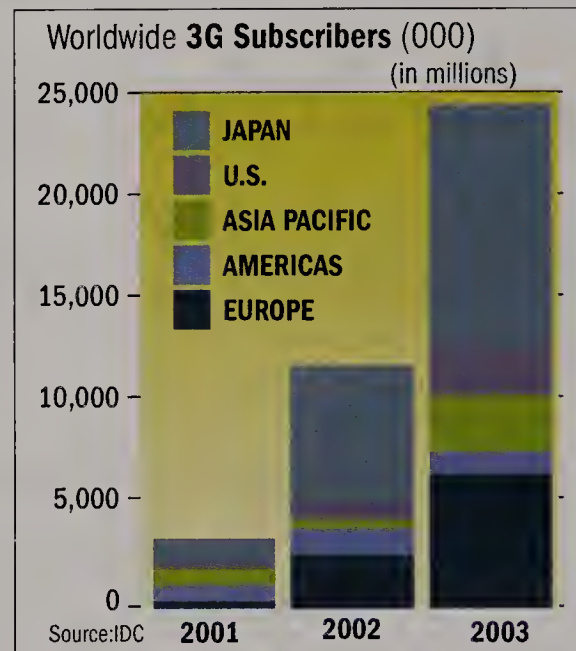
It's still about infrastructure . . .

So perhaps the question CIOs and technology managers need to ask is not *How much and how fast will my company become unplugged?* but rather *How can we get all these wired and wireless networks into a single, cohesive, manageable technology infrastructure?*

The goal is a unified network infrastructure able to support a complete range of client devices—wired and wireless alike—from high-end general-purpose workstations to notebook computers and PDAs and

cellphones to special-purpose appliances. This requires a network infrastructure that incorporates robust services able to handle it all.

Such infrastructure maturity hasn't yet been achieved, and adding wireless capabilities to the mix make the effort even more complicated and daunting, especially when it comes to security and presentation services. Which means CIOs and technology managers—and their staffs—have



more work to do than ever integrating wireline and wireless worlds.

"A company embarking on m-commerce can easily find itself coping with limitations rather than opportunities," says Sanjoy Malik, founder, president and CEO of Air2Web, Inc. "It can find itself losing customers and potential sales simply because individuals buy a new digital phone or swap one PDA or pager for another—rendering a platform-specific mobile application useless. Or because the organization doesn't have the staff or expertise to write applications and maintain all the technology required to make m-commerce succeed."

To get a sense of what kinds of products, tools, services and solutions are available to ease the pain, IT professionals can turn to SolveIT.com from MindMatrix. An IT project development Website that can aid your wireless development efforts, too, SolveIT.com combines hardware, software, services and industry knowledge from hundreds

of major manufacturers, putting it all together with diagrams describing particular IT solutions.

Supporting wireless capability means constructing multi-tiered environments, ensuring that connectivity and security get implemented through existing firewalls and router infrastructure, and using the same authentication and security protocols for applications regardless of how the apps interact with wired and wireless clients.

"The movement to wireless Web devices will have to accommodate two changes: differences in the end client—a phone, PDA or interactive pager—and differences imposed by using the wireless medium for delivery," explains Harbinder Khera, president and CEO of MindMatrix. "The client differences include a smaller display space as well as less processing power and storage. The medium differences include limited bandwidth and coverage. These obstacles are being addressed through either the development of separate Websites for the mobile devices or the use of a gateway to render content in different formats."

Companies like Extended Systems, Inc. can help. Its XTNDConnect Server is a sophisticated synchronization and management solution for the enterprise that enables IT departments to integrate and manage mobile devices. XTNDConnect RPM (Remote Procedure Middleware) is a middle-tier server for developers who are building realtime, data access/management applications to be extended to mobile devices across wireless (and wired) networks. And Extended Systems' XTNDAccess Blue SDK is a multi-purpose software development kit designed for use in embedded devices such as cellular phones, PDAs, portable office equipment, digital cameras, medical equipment and industrial automation products.

Security warnings

What are the security risks posed by wireless devices and the applications they're used for?

Gartner Group analysts say the greatest problem is that it's so easy for users' wireless devices to be lost or stolen, and since the devices are nomadic and not always on, picking out specific signals and messages from the spectrum stream is tough to do.

Protection of passwords and credit card numbers during wireless e-mail and financial transactions may be more problematic. As more and more wireless Web portals allow access to corporate apps and databases, the need for security will become paramount. But typical security mea-

sures—encryption, public-key infrastructure (PKI) systems, digital certificates—carry overhead that can be too much for wireless to handle.

While the Wireless Application Protocol (WAP) includes a security layer and proponents recommend using WAP's Wireless Transport Layer Security (WTLS) digital certificates, it remains difficult to secure data on wireless networks initially designed for voice communications. Techniques like radio frequency fingerprinting, personal identification numbers, roamer verification and

reinstatement profile and authentication are being developed.

Analysts contend that better security will come only with the faster transmission speeds of future generations of wireless technology, like GPRS, EDGE and 3G.

But not everyone agrees.

"There is a lot of misperception about security and wireless," believes Venkatesh Shukla, CEO of Everypath, Inc. "If anything wireless is more secure than the Internet, not less, because unlike the Internet where nobody owns it, in wireless the carriers are responsible. They are trusted brands like AT&T and Sprint and will make sure the breach doesn't happen. And they have done that."

Amazon.com Partners With Nokia to Pioneer New Territory

Using a WAP (Wireless Application Protocol) platform, Seattle, WA-based Amazon.com is pioneering new mobile commerce territory. With the launch of its *Amazon.com Anywhere* service, it has become one of the first major online retailers to recognize and do something about the potential of Internet-enabled wireless devices. And, if early indications are anything to go by, sales via wireless technology will one day be bigger than Amazon.com's wireline sales.

"The next frontier of commerce will be m-commerce," says Joe Galli, Amazon.com's president and chief operating officer. "People are becoming busier. M-commerce opens up a whole new world of opportunity and WAP is the contender to be the world's largest platform for m-commerce services."

Nokia: Obvious Choice for Wireless Partner

According to Galli, Nokia Corporation was the obvious choice when Amazon went looking for a partner with WAP experience. Citing Nokia's fast response and quality products as two reasons for the decision, Galli says Amazon.com looks "forward to a long and close collaboration with Nokia."

The two companies have already collaborated to create the www.amazon.co.uk WAP site and *Amazon.com Anywhere* went live in Europe in February 2000. The UK site will be followed shortly by the Amazon.de and Amazon.com WAP-based sites in Germany and the United States, respectively. By the end of the year these Amazon wireless services will be joined by an Amazon service in Japan. The intention is to provide a global service. And not for just selling books, either.

"Whatever is available over Amazon.com will be available over wireless devices such as WAP-enabled mobile phones," says Galli.

Nokia believes Amazon.com has got its timing right with its early decision to pursue the WAP based m-commerce market.

"This is an excellent service which fits with Nokia's strategy of demonstrating what life is like in a mobile information society," notes Anssi Vanjoki, senior vice president of Nokia Mobile Phones. "The Amazon relationship has opened the door to m-commerce on a global scale. It's no longer a pipe-dream discussion at conferences. With Nokia and Amazon, it has become reality."

To find more information on Mobile Internet, visit Nokia at www.nokia.com

The rock and the hard place: should you outsource?

Bringing your business up to wireless speed takes a lot of work and a lot of money. And since you know that wireless technologies and protocols will be changing over the next few years, it's tempting to forego the effort.

On the other hand, the business opportunities presented by wireless applications may be substantial for your company. What's more, your competitors may not be willing to sit back and wait for next-generation protocols before they plunge into the wireless world.

"At this early-adoption stage in the market segment that will ultimately offer most value to the user—access to corporate vertical applications—it makes sense for organizations to outsource," notes Steve Chuey, vice president, technology, global communications industry, Unisys Corp. "The technology is evolving so rapidly that outsourcing will help address changing market needs."

Software solutions provider Silverline Technologies, for example, has experience in telecommunications, e-business and developing WAP technologies.

"Because of the initial knowledge investment required to learn the variety of devices and how wireless changes business models, outsource-

ing application development and maintenance is very cost-effective," contends Silverline's Proud. "It's better to start off now with smaller projects to be able to lay out a defined corporate strategy later based on the knowledge gained."

Using its expertise in network services, systems integration, vertical industry solutions, multivendor support and outsourcing, Unisys integrates and delivers electronic business and m-commerce solutions, including WAP-based wireless solutions.

Another alternative is an Application Service Provider (ASP) able to build as well as host Web-enabled wireless applications.

Wireless technology is young and

still emerging, so investing time and energy at this stage developing apps in-house is risky. The right company can help you get a quick foothold as an early wireless adopter without making major changes to Website or infrastructure. Outsourcing also means you don't need to invest in staff with wireless expertise.

ASP Everypath can mobilize your existing Web-based content and applications for the wireless Web using a process that enables its customers to maintain a single infrastructure, regardless of the kind of device with which users choose to access information.

Air2Web's Always Interactive suite of services provides state-of-the-art

U R Linked

www.air2web.com
www.everypath.com
www.extendedsystems.com
www.MindMatrix.net
www.motient.com
www.nokia.com
www.silverline.com
www.unisys.com
www.wirelessIT.com

Extended Systems Helps Reuters Take Information in Hand to Track Competition, Increase Sales

Global news and information giant Reuters was looking for a way to give its sales executives an in-the-field advantage: a contact manager allowing them to target existing and prospective clients needing access to financial news and information. Reuters currently uses Contacts Manager, a network application running on an Oracle database, to help sales executives gather competitive data and manage client interactions. But as good as this information is, it's not available in the field, where access to up-to-date information is critical, enabling executives to see which products their customers are currently using and sell them additional Reuters products and services.

Extended Systems, Inc., a leading provider of mobile data management and wireless connectivity solutions, worked with Reuters to create a portable version of Contacts Manager. They used Metrowerk's Codewarrior, a mobile application development tool for Palm OS devices, and implemented Extended Systems' XTNDConnect Server synchronization and management software to maintain and synchronize customer/prospect databases between the corporate server and mobile devices in the field.

Changes on the Fly

The application enables the storage of a list of sales representative contacts that can range from a hundred to several thousand. It allows for basic contact information, as well as sophisticated features detailing Reuters' products, target markets and competitive offerings—all customizable by the sales representative. It also allows the representative to change any of the information on the fly.

"It's easy to use," reports Manuel Pineda, one of the sales executives using XTNDConnect Server. "With one click you can collect information on what your users are interested in, what competing products they're using and what things you have to remember after a customer meeting."

Reuters has implemented the solution in Spain, with France and Belgium set to follow. What's more, Reuters executives view the application as a way to expand the use of PDAs within the entire organization.

For more information on how Extended Systems can help you implement a mobile strategy, go to www.extendedsystems.com

application hosting with day-to-day applications management and 24x7 support. This enables organizations to create, deploy and deliver their branded applications to consumers using all types of wireless devices, from WAP and SMS phones to pagers and pervasive computing devices. The Air2Web service supports interactive text and audio applications across the widest range of wireless devices, including one-way SMS.

"The Web shouldn't have to change," maintains Everypath's Shukla. "You should be able to take that multimillion-dollar investment you already have in existing Web content and leverage it for wireless instead of reinventing the wheel from scratch. This is similar to the paradigm that exists for brick and mortar businesses that developed Websites, or newspapers that developed online versions—they still offer the same products and information, just in an additional medium."

Yet, as wireless applications become more pervasive, the Web—and a lot more—may change.

"I believe more and more sophisticated end-users will neither need nor want anything more than a minimal user interface," says Silverline's Proud. "They'll just want speed. So categorizing end-users by their 'sophistication level' will become a critical wireless design criterion."•

This is the third in a series of four Strategic Directions Supplements produced by CIO Custom Publishing. The next supplement will examine trends and customer solutions in Customer Relationship Management (CRM).

For more information, contact Mary Gregory, director of custom publishing, at 508 988-6765 or mgregory@cio.com



upwardly
mobile?

Is your company

It is a mobile world. To succeed, companies need powerful solutions that can transform information into business value – anytime and anywhere. XTNDConnect Server software from Extended Systems does just that.

Data synchronization and management features allow easy integration of mobile devices, regardless of platform, into your enterprise environment. Users synchronize data to Microsoft Exchange, Lotus Domino or any ODBC-compliant database. And IT managers maintain strict control of devices using an array of sophisticated management tools.

Upward mobility has its advantages. Move up to XTNDConnect Server and make the most of a mobile world.

**Who is upwardly mobile? See on our Web site at:
extendedsystems.com/go/cio**

 **Extended
Systems®**
Beyond Connected™

Mobile Internet.
Build faster 3G access. *success.*



Rewrite the rules

Forget the techno hype. Focus on profit and people.

Change your 3G focus from just access to profit-generating personal services and mobile commerce. Our complete 3G system is the first on the market and gives unrivalled time-to-profit.

It spans from terminals and ready-to-launch service packages to planning, management, system integration and networks. And what's best, we know mobile users and they know us.

To become a leader in 3G, join us in the Mobile Information Society. Visit us at www.nokia.com and start rewriting the rules your way.

NOKIA
CONNECTING PEOPLE

NETWORLDSM + INTEROP[®]

CONFERENCE AND EXHIBITION
ATLANTA Sept. 24-29, 2000

LINUX  **ATLANTA 2000**
BUSINESS EXPO

Co-located at NetWorld+Interop for the first time

Connect with

E-BUSINESS SOLUTIONS

at the Southeast's Leading High-Tech Event

Featuring the

ASP[™]
SUMMIT

Conference

Register online
for your

FREE
exhibits
pass.

In today's hyper-competitive new economy, your company is only as strong as its e-infrastructure. Success and survival depend on constant innovation. Meet your infrastructure needs to advance your e-business goals at NetWorld+Interop 2000 Atlanta—the Southeast's leading high-tech event.

Learn to maximize the value of your technology investment at the two-day Strategic Interop conference, part of 700+ hours of world-class education. Meet more than 500 leading vendors and start-ups with solutions to help you transform your information infrastructure into a competitive asset.

Join 50,000+ professionals capitalizing on the convergence of voice, data and video. At NetWorld+Interop, leaders and decision-makers from top enterprises and service providers come together to strategize, innovate and see where the industry is going.

Keynote by
Carly Fiorina
of Hewlett-
Packard

Connect with success.

Register Today at **www.interop.com**.

888-886-4057

Use Priority Code: **CCMG2**

KEY3MEDIA EVENT

©2000 Key3Media Events, Inc., 303 Vintage Park Drive, Foster City, CA 94404. All rights reserved. Key3Media, Interop, InteropNet, iLabs, eNet, Strategic Interop, Summit, LINUX Business Expo, Linux Solutions Zone, Interop Garage, Start-Up City, ENT Zone, Interop Insider, and related design marks and logos are trademarks owned and under license by Key3Media Events, Inc. and may be registered in the United States and other countries. NetWorld is a service mark of Novell, Inc.

Outsourcing

a 20 percent risk factor built into its milestone estimations only to find its offshore outsourcer had built in an 80 percent risk for the same set of deliverables, making the project run seriously off course. Another was told by its offshore contractor that a deadline would be difficult, not realizing that difficult was a culturally polite way of saying impossible.

To prevent your offshore projects from bobbing aimlessly on the high seas, or sinking in stormy weather, follow the golden rule of any outsourcing project: Don't assume

anything, ever. Specifically, companies must pick their projects with care; spend an equal amount of consideration choosing the right offshore company with which to partner; commit to communicating early and often with their foreign counterparts; and come ready to invest in the relationship, both strategically and financially.

CHOOSE YOUR PROJECTS CAUTIOUSLY

THERE IS NO LONGER ANY SINGLE TYPE OF PROJECT that companies deem more acceptable for

travel offshore than high-level applications such as website design, and product-line enhancements now make the trip alongside the legacy-system maintenance and customer-service contracts that were initial candidates for outsourcing. But there are general characteristics that make a project more likely to succeed away from home.

Clarity and containability are the two watchwords of choice. Consider projects that can be sharply defined and specified, and those that can easily be snapped out and

"PEOPLE DON'T understand how to work overseas, and the assumed loss of control scares some companies away."

FARLEY BLACKMAN, CEO, STRATEGIM



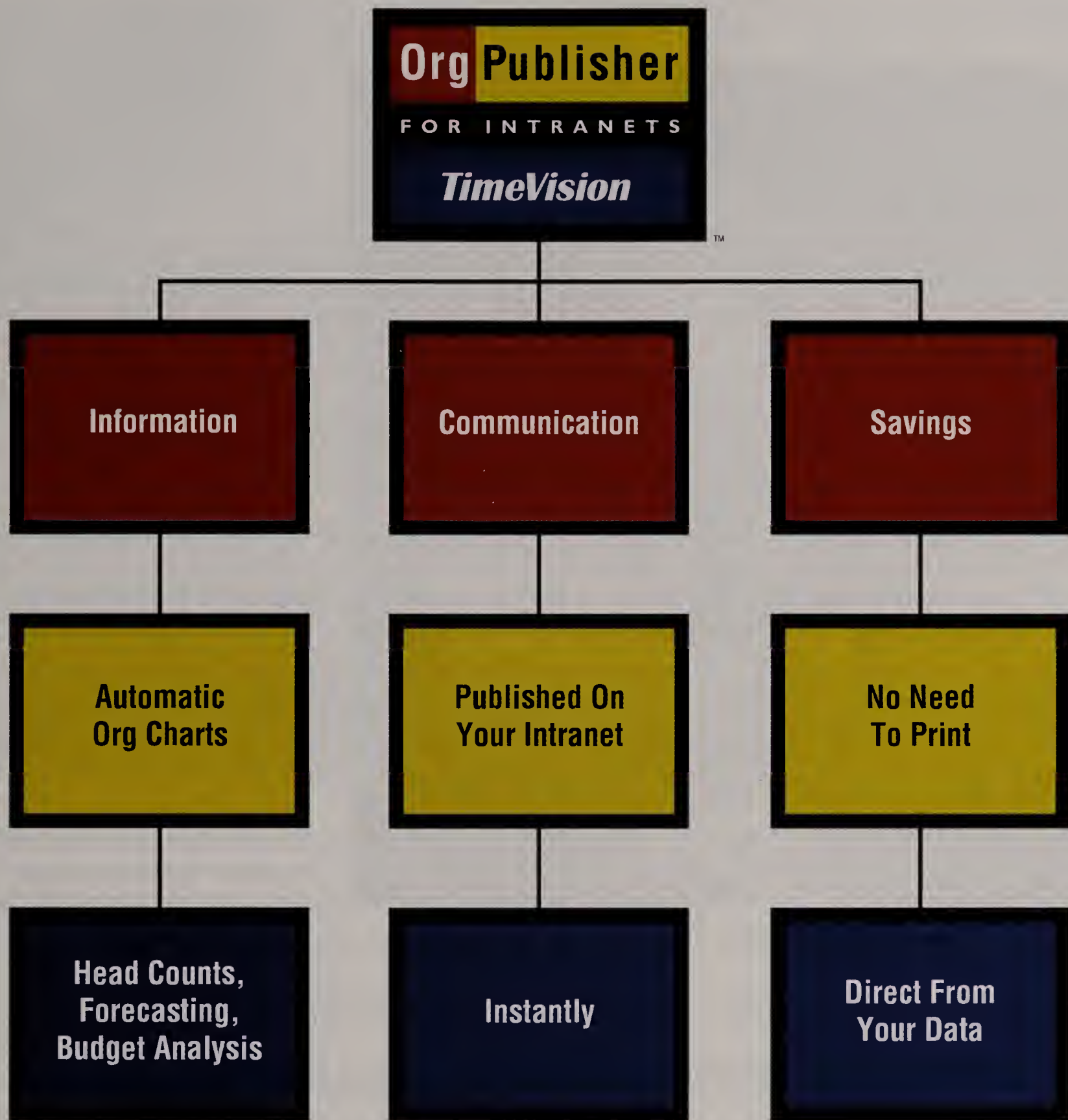
Farley Blackman, CEO of StrategIM, helps U.S. companies cope with the complexities of offshore relationships.

back into the larger application—a particular concern because integration points are often a source of trouble and confusion.

"You need a clear-cut and well-defined state of objectives that any future communication can be mapped against," says Ross Belson, president and COO of General DataComm Industries (GDC) in Middlebury, Conn. Belson's company signed on last summer with Chicago-based Kanbay, which maintains a development center in Pune, India, among other offshore locations, to maintain and upgrade some of GDC's product lines, thereby freeing up internal engineers in the United States to focus on new products. "If you're still in the 'R' part of R&D, where you're exploring platforms or debating costs, and you've got a partner overseas trying to keep pace with those changes, it's not going to work," Belson says.

Project timetables are also a consideration, according to Bruce J. Goodman, senior vice president and CIO at Humana in Louisville, Ky. Humana has contracted with Syntel of Troy, Mich., which maintains centers in Europe, India and Singapore to perform legacy-systems maintenance offshore, in part because those tasks have a specific build-and-release cycle that doesn't require

PHOTO BY MARK WILSON



OrgPublisher for Intranets™ turns data into information that can be shared clearly, concisely, instantly across a company's intranet. To help virtually everyone benefit from OrgPublisher's innovative head count and roll-up features, we offer a variety of free connectors available for leading HR/ERP systems. OrgPublisher even operates cross-platform. So try OrgPublisher and really change the way people in your company view information.

Download a free trial version of OrgPublisher at www.timevision.com

To receive a free OrgPublisher trial CD, contact sales@timevision.com or call toll free 888.674.2427



David Hardwick, director of customer relations at RealNetworks, *pays special attention to how his offshore partners communicate with one another.*

but hasn't yet sent anything overseas in his current position. "Onshore works better where the opposite is true: if you have an iterative development cycle or when the end point is a moving target." Onshore is also more expensive when it involves importing offshore talent, observes Hackney. "You're paying to bring folks over here, for their [H1-B work] visa, their housing and board, and you pay a premium to entice the people to come here in the first place."

PICK YOUR PARTNER WITH CARE

LIQUIDPRICE'S GUPTA, WHO WAS PERSUADED to give offshore outsourcing one last try after meeting with and being impressed by officials from SeraNova, is among many executives who emphasize that the relationship between a domestic corporation and its offshore partner can mean the critical difference between a project's success and failure.

Any successful offshore relationship must begin at home—in the corporation's home office. "If it won't work onsite, it won't work offsite," said Gupta, who first had the SeraNova project manager and engineers working onsite in his office for a four-month trial period to ensure that work styles, goals and

IN OFFSHORE partnerships, companies can be almost hyperaware of ethnic cultural differences such as language barriers.

daily interaction between developers and Humana's own IS staff. "We can give somebody a job where they don't need to be in touch every day," explains Goodman. "Then, during testing, we can turn around and use the time zone difference to our advantage to get multiple turnaround cycles in the same day."

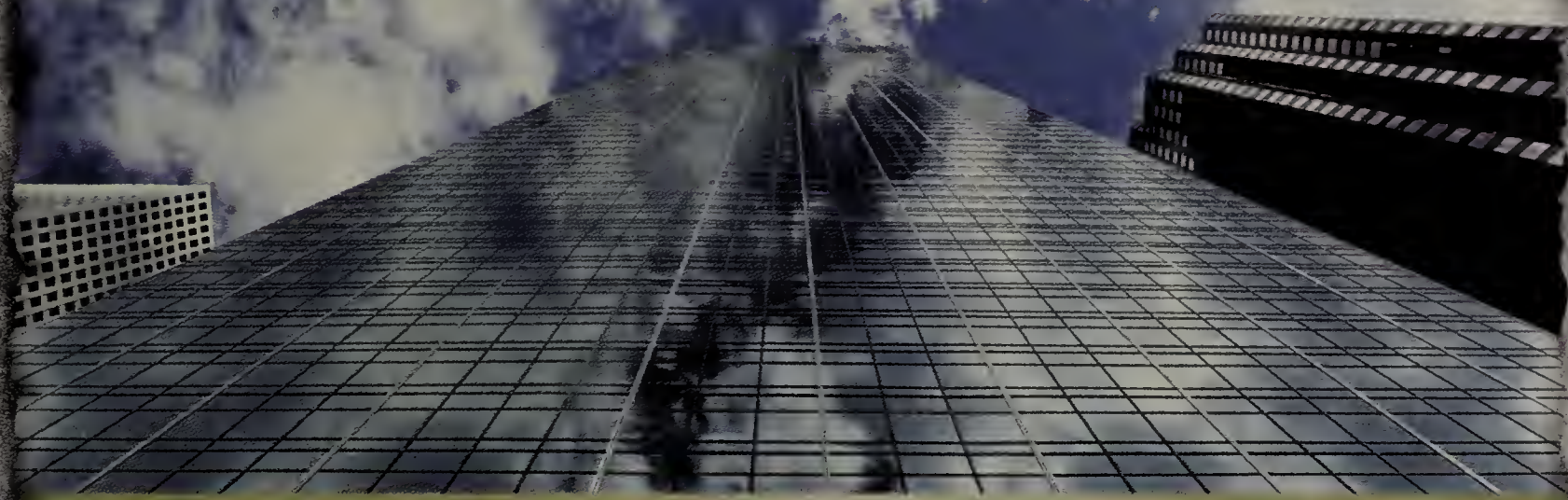
Those requirements are among the reasons why Bank of America Commercial Finance (BACF) in Wilton, Conn., chose not to send a project offshore, though Allan Hackney, senior vice president of information technol-

ogy, would have preferred otherwise. BACF is using an onshore workforce from India, provided through Wipro Corp., a global outsourcer with offices in Santa Clara, Calif., and 10 other U.S. cities and overseas operations in Europe, Japan and India. Wipro workers maintain the bank's legacy loan-accounting system while staffers concentrate on bringing a new system online. "Offshore projects work when requirements are well-known and success is easily defined and understood," says Hackney, who has extensive experience with offshore projects at other corporations

corporate culture were aligned. On the flip side, some managers at other companies go onsite to evaluate working conditions and the strengths of the outsourcer's remote management team, which plays a critical role in keeping communications open and milestones met.

With offshore companies in particular, workforce issues can be sensitive and politically charged because of local labor or cultural situations. In other words, nobody wants to end up like Kathie Lee Gifford, embarrassed by the public disclosure that her line of clothes was assembled in Third-World

PHOTO BY BRIAN SMALE



WALKER KNOWLEDGE IS POWER

Walker. We've always been at the leading edge of business technology. Working with the world's most successful enterprises. Today, our new *Deep e-business solutions*™ are taking over the online arena. After all, Walker is e-business to the core.

For over 25 years, Walker has provided powerful software applications to the world's Global 2000 enterprises. Now we've staked out our territory in the New Economy by offering Deep e-business solutions to companies of all sizes. Solutions so robust, that no one comes close to handling the volume we do. Solutions so human, that your staff and business partners can collaborate freely and effectively anywhere, anytime, all the time. So if you're intent on running an e-business, you're on our turf.

To schedule a meeting or for more information, visit www.walker.com or call 1-800-PICK-WALKER.

**e-business is our turf.
And you're on it.**



We mean e-business

© 2000 Walker Interactive Systems, Inc. Walker and design, and "Deep e-business solutions" are trademarks and/or registered trademarks of Walker Interactive Systems, Inc. All other brand and product names are trademarks of their respective owners.

sweatshops. When RealNetworks was looking for assistance with its e-mail technical support, the company made a point of checking out the conditions, both physical and emotional, at potential partners that maintained a foreign workforce. "We wanted to make sure that anybody we partnered with was treating their employees fairly and in an equitable fashion," says David Hardwick, director of customer relations at RealNetworks in Seattle, which eventually gave its business to Talisma Corp., a Seattle outsourcer with offices in Florence, London and Bangalore. There are

business as well as social reasons for such an inspection, he says. "We wanted to know that people weren't unduly stressed. If you are working under very poor conditions, you'll be giving out poor advice," Hardwick observes.

Beyond basic social responsibilities lies a much more subtle but crucial element: corporate culture compatibility. In offshore partnerships, companies can be almost hyper-aware of ethnic cultural differences such as language barriers and differing work hours but can miss red flags that might point to significant problems later on. "It can be

pretty hard to pay attention to [corporate culture] at the outset," says Hardwick, "and most PR companies don't want you to see the whole picture."

One good litmus test is to determine how bad news is communicated or how problems are discussed. "What do they call bugs?" Hardwick asks theoretically. Companies that use euphemisms or tiptoe around the issue of bugs or glitches won't be a good fit with plain-speaking, full-bore-ahead clients. RealNetworks particularly likes that Talisma lets executives know when there's been a customer-relations problem that the outsourcer was unable to resolve satisfactorily, Hardwick says. "When there are escalations, they bring them up. Otherwise, we'd find out by having some irate call go through our front desk, and that's not good from a time or customer point of view."

Corporate culture is the biggest challenge, more so than regional culture or language, says Valrie Dyhouse, product development program manager at Tektronix in Beaverton, Ore. "Simply being removed can exacerbate any differences in corporate culture," says Dyhouse, who functions as the point person between her organization and Rohde & Schwarz, a German manufacturer of test and measurement equipment with which Tektronix has an ongoing joint development and marketing agreement. "You have to be careful not to assume anything even when you think there shouldn't be a problem."

COMMIT TO COMMUNICATING EARLY AND OFTEN

OFFSHORE VETERANS RECOMMEND THAT companies use every technological tool at their disposal to keep the lines of communication as open as possible, including e-mail, fax, voice mail, teleconferencing, videoconferencing and even face-to-face meetings both at home and in the offshore location.

"Different people communicate in different ways," Dyhouse points out. "Some engineers are uncomfortable with videoconferencing, others like to see the other person's

High-Seas Ghost Ships

General Electric does it, but would rather not discuss it on the record. Target Stores does it, but it passes up the opportunity to talk about it. American Express does it, but it's unavailable for comment.

Are we talking software piracy? Cooking the books? Peddling trade secrets on the black market? Try offshore outsourcing. More and more companies are doing it, but not everyone will admit it. Even in the midst of a well-publicized IT employee shortage and the lowest unemployment numbers in 30-something years, some companies still prefer to play coy about their foreign partnerships.

For some companies, relations with labor unions are a good motivator for keeping quiet. For others, it's simply a matter of trying to keep beneath the radar of public opinion—after all, nobody wants to be the next Nike (which has been slammed by groups protesting conditions in its offshore factories) or Kathie Lee Gifford, who after four years is still answering questions about her clothing line's use of forced labor. National, state and local politicians, eager to take credit for making their region the next technology hotbed, occasionally inveigh in public against sending work overseas.

And sometimes there's plain old cultural bias at work. Companies fear that customers will look askance at work done or products produced anywhere other than in the good ol' U.S. of A. "There can be a bit of an Ugly American aspect to some of this," says Farley Blackman, CEO of StrategIM, a Burlington, Vt., offshore consultancy. "There are some Americans who still have the attitude of 'We're No. 1, and our workers are better than others,' and companies don't want to have to fight that bias in public."

That kind of caution can seem silly to younger dotcom companies that were founded with a global perspective in mind and have no problems fully disclosing their offshore relationships. "Most software companies are using outsourcing in various ways," says David Hardwick, director of customer relations at RealNetworks in Seattle, which outsources its e-mail customer service requirements to India through Talisma Corp. "If they're doing it and they don't want their customers to know, that shows an incredible amount of bias."

—T. Mayor

MISSION

Protect and manage the
information that keeps
your business growing.

Let it flow / The Division Head is banking everything on the new line. Customers are clamoring for details. Marketing is capturing data. Finance is crunching the numbers. Today, business runs on information. And IT has to keep all of it available. All the time. Relax. Tivoli Management Software offers a centralized view of data across multiple systems, applications and SANs. Plus, if any data should get derailed, it can be quickly and easily recovered to get you right back on track. That's why IT chose an integrated storage management solution from Tivoli Systems Inc., an IBM company. 1 888 TIVOLI-1. www.tivoli.com/storage

**Tivoli**

Manage. Anything. Anywhere.™

Tivoli is a registered trademark and Manage. Anything. Anywhere. is a trademark of Tivoli Systems Inc. in the U.S. and/or other countries. In Denmark, Tivoli is a trademark licensed from Kjøbenhavns Sommer-Tivoli A/S. Tivoli Systems Inc. is an IBM company. IBM is a trademark of International Business Machines Corporation in the U.S. and/or other countries. © 2000 Tivoli Systems Inc.

Network Magazine
**PRODUCT
OF THE
YEAR
2000**

Outsourcing

face.” LiquidPrice.com’s developers often resort to the relatively low-tech option of the fax machine, says Gupta, because it’s an easy way to share marked-up documents.

The goal in offering an array of communication options is to mimic the kind of bumped-into-you-in-the-hallway discussions that aren’t possible when half the team is in India and the other half is in Chicago. Not only do frequent e-mails and videoconferences help build the team cohesion that practitioners like Dyhouse say is crucial to offshore success, they’re an important way

tial that organizations appoint a single person to act as a go-between, a manager who has a strong command of both the project at hand and the bigger goals of both companies. “You need to have a project manager who can operate effectively in both worlds and it’s important that person have authority and responsibility for the project in both places,” says BACF’s Hackney. “I’m not talking about a liaison. It has to be a decision maker who can act as a cultural translator to ensure that there are common expectations and accomplishments.”

team members were reluctant to share bad news or say they were in over their heads—all out of what Americans would classify as exaggerated deference to management. Another warns colleagues to pay special attention to terminology when setting up milestones and other project-measurement structures: A deliverable in one business’s book may mean a finished product, while to someone else it means that a spec is ready for the vice president’s perusal.

Still, companies often find a silver lining

WHEN OFFSHORE projects go astray, frequently the reasons are poor communication or cultural miscues.

to pick up casual progress indicators that often don’t come out in a formal meeting yet may be crucial to a project downstream.

That said, formal meetings can’t and shouldn’t be ignored. In addition to capturing those water-cooler moments, managers say, it’s important to set a schedule of regular meetings between onshore and offshore workers, with the interval determined by the nature of the project and the employees’ level of responsibility—engineers may need to conference call weekly, with marketing experts getting together once or twice a year for a longer, more in-depth planning session, as is the case at Tektronix.

General DataComm engineers and managers occasionally travel to Kanbay’s brand-new, state-of-the-art scientific lab in India so that they can replicate work done by their domestic counterparts in Connecticut. “People talk to an engineering manager from an emerging country and they come up with a preconceived notion of what it’s like over there,” says Belson. “Then they go over and see a sparkling new facility, and their attitude changes.”

With communication so crucial to the success of an offshore partnership, it’s essen-

ANTICIPATE AND ACCOMMODATE CULTURAL DIFFERENCES

LANGUAGE DIFFERENCES WOULD SEEM TO BE A natural first concern when sending work overseas, but in fact misunderstood work habits most frequently derail offshore arrangements. Even in countries that have what Americans consider to be a strong work ethic, hours are generally shorter and vacations longer and more frequent, and coworkers are more reluctant to receive calls afterhours or during the weekends. And while most international business travelers are already aware that handshaking, table manners and other staples of standard business interaction can unwittingly offend people of another culture, managers need to pay special heed to miscues that can have a direct impact on an overseas project.

RealNetwork’s Hardwick tells a story of one programmer from India who was working in the United States for several weeks and left for two hours at lunchtime. His domestic colleagues were mystified until someone pointed out that the main meal of the day in India is eaten at midday, and a two-hour break is the norm. Other managers recount instances when

in cultural differences. For example, Hardwick says the King’s English, written by Talisma’s Indian crew answering RealNetwork’s customer-support e-mail, is far superior to the language skills he sees in U.S.-educated job candidates. Dyhouse says a language barrier can help maintain rigor in the relationship. “Having a language difference and knowing it helps remove the assumption that you know what other people are speaking about,” she points out. “When offshore partners speak English as a first language, it’s sometimes more dangerous.” Companies will generally take care to translate “global parameter” correctly for their foreign-speaking partners but may assume their English-speaking colleagues know what they’re talking about, Dyhouse says, not realizing that “global parameter” can apply to the entire code, a measurement group or a single measurement. “You can think you’re speaking the same language, but you really aren’t.” **CIO**

What has your experience been with offshore outsourcing? Share your thoughts with Senior Editor Tom Field at tfield@cio.com. Freelance writer Tracy Mayor can be reached at tmayor@mediaone.net.

We have the

TECHNOLOGY

A leading Java-based personalization and e-commerce platform.

We have the

PARTNERSHIPS

A network of more than 150 of the world's best technology and solution partners.

We have the

E-BUSINESSES

Over 400 worldwide customers including Benetton, BlueLight.com, Eastman Kodak, and J.Crew.

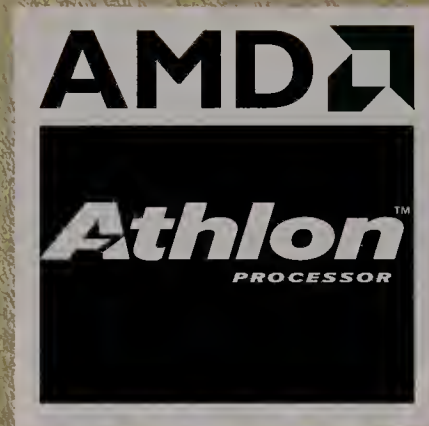
We have the best

PLATFORM.

Do you?

e-Business isn't about building a Web site; it's about running your business. ATG understands that. For more than five years, we've provided a software and application platform that helps businesses build and manage online relationships with customers, suppliers, and partners. Our solution, ATG Dynamo[®], offers everything from multilingual and wireless-Web support to a scalable platform that grows with your business. Introduce your e-business team to our platform by visiting us online at www.atg.com/platform



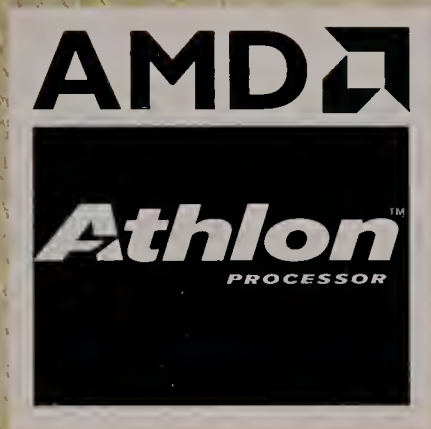


YOU'D SMILE TOO IF YOU'D JUST BEEN NAMED



The editors of PC World magazine judged hundreds of products based on performance, consistency, innovation and value. Their verdict? "AMD's Athlon Processor is a superstar in all four" and "Athlon-based PCs sprinted to the top of our

corporate and home PC charts." These are just a few of the reasons that they chose the AMD Athlon™ processor as "Product of the Year." You'd think



PC WORLD MAGAZINE'S PRODUCT OF THE YEAR.

we'd be used to this by now. After all, AMD Athlon processors have already won more than 65 awards worldwide. But when we hear things like "record-breaking performance," "architecturally superior to Intel Pentium III" and "the first to hit a clock speed of 1 gigahertz, beating Intel at its own game," we still can't help but grin. You will too when you see what an AMD Athlon processor can do for your productivity. Log on to www.amd.com/pcworld.

To take on tough rivals,
American Floral Services
seizes the mantle of e-business
evangelist to retail florists

BY JAMES BARRON

Flower Power

The Company: American Floral Services

Founded 1970 **Ownership** Privately held **Location** Oklahoma City **Employees** 600 **Mission** To use the Web to strengthen customer ties, increase services purchased by 24,000 member florists in North America **Annual revenues** \$100 million to \$150 million **IT investment** \$30 million over the past four years **URL** www.afs.com

WHAT DO YOU GET when you combine fragrant purple stock, pink sweetheart roses, yellow daisy spray mums and white monté casino asters with the Internet? The answer is leadership in the \$15 billion-per-year floral industry, says Tom Butler, president and CEO of American Floral Services (AFS).

It's a fiercely competitive industry—made only more so by the Internet—where powerful rivals vie for the attention and dollars of retail florists. AFS's two strongest competitors in the flowers-by-wire business are FTD and Teleflora. Butler says that FTD, Teleflora and AFS each share about one-third of that market.

FTD charges a monthly membership fee of \$199, has its own Mercury wire technology—an extensive network of participating florists distributed over a wide geographic area—and heavily promotes its well-known brand name. Teleflora charges a monthly membership fee of \$99, has about 25,000 member florists and advertises its brand name and products—particularly its popular holiday containers.

Most retail florists belong to two or all three of the big wire-service providers, because there are differences in areas covered and specialty products offered. But there is also considerable overlap and a resulting incentive for retailers to jettison one or more of the wire services to reduce their monthly membership fees. In addition, newer online players, like 1-800-Flowers.com, present fresh challenges for both the wire services and retailers (see “Crowded Garden,” Page 112).

AFS's strategy calls for using the Internet to enlarge market share. It may sound daunting, but Butler and his team believe they have a historical advantage here: Building customer loyalty has been the core of AFS's business since it was founded 30 years ago. Since then, AFS

has provided a variety of services, from publications (Butler says the company is the largest publisher of educational materials for retail florists) to workshops on topics ranging from floral design and shop management to computer technology. This is all in addition to AFS's flowers-by-wire service, a network of 24,000 member florists in North America with 55,000 affiliates abroad. Wire orders, of course, are central to the company's revenue stream (AFS charges member florists \$79.95 per month, plus a 9-percent-per-transaction fee). But wire orders have plateaued, Butler says. For the past five years, orders have remained relatively flat at approximately \$350 million per year.

Pollinating IT

AFS has sold technology tools to its customers since the early 1980s. Rosebud, its DOS-based accounting and shop-management program was specifically tailored to the needs of retail florists—businesspeople who, AFS marketers felt, enjoyed the aesthetics of flowers more than computers but could benefit from using IT. AFS developed successive generations of that program based on Unix and then on Windows.

Making its software “drop-dead simple” for florists to use continues to be an essential factor, says Terry Byers, who joined AFS four years ago as chief technology officer and is now also senior vice president. Byers says that florists need ongoing education and support to increase their comfort and skill levels in using new technology—at the same time, they face the pressure of managing their business.

Since Byers came on board, AFS has significantly increased its commitment to providing that new technology. With annual revenues ranging from \$100 million to \$150 million, AFS has invested \$30 million since 1997 in IT infrastructure and software development. According to Byers, AFS rebuilt its system using networking equipment from Lucent Technologies, Cisco and 20 high-end HP Unix servers. Nine satellite

offices access the central network via a frame-relay wide area network. System software includes an Oracle database, a Lawson enterprise resource planning package and a standardized desktop environment using Windows NT.

AFS wants to make its software “drop-dead simple” for **florists** to use.

—AFS CTO TERRY BYERS (RIGHT) WITH CEO TOM BUTLER



Once this new infrastructure was in place, AFS was in a position to provide an array of enhanced e-business services to its member retail florists in the United

States and Canada. These services include an Internet-based network that enables florists to send and receive wire orders (EagleNet), e-mail and e-commerce enabled websites (Eflorist.com), and management and accounting software that helps florists run their shops (Eagle Floral Management System). AFS charges 50 cents for each EagleNet transaction and \$2.95 for each Eflorist.com transaction. The company bundles the enabling software in its Flower Power Kit and distributes it at no additional cost to its members.

AFS worked with IBM Global Services to build the Internet-based EagleNet wire network. Byers says that EagleNet costs about the same as monthly ISP access for the retail florist and it integrates easily with both the Eagle Floral Management System (FMS) and with Eflorist.com, which allows retail florists to have their own websites with their own logos, consumer reminders, promotional items, product catalogs and saved shopping baskets.

Butler predicts that by 2005 the Internet will be involved in 60 percent to 70 percent of the retail florist's business, and he believes that AFS is well positioned to be a key provider of the necessary technology that will fuel that growth. AFS plans to work intensively with the individual shop owners, educating them about the challenges and opportunities of the Internet. Now that AFS has standardized the desktop environment of its members, it will be easier to provide online technological updates as well as educational and promotional materials.

Bigger Plants to Harvest

AFS's long-term game plan goes beyond its traditional base of retail florists. The plan is to be a major player managing the information technology that would link the critical components of the floral industry, including growers, wholesalers, retailers, manufacturers, importers and exporters of floral products. "We want to bring them all together in a community to facilitate commerce," says Mark Nance, AFS's marketing chief. Adds Byers, "We want to tran-

EXPERT ANALYSIS BY STEPHANIE PAWLOWICZ

It's a Jungle Out There

Amid fierce competition, American Floral Services (AFS) is striving hard to keep pace with an ever-changing wire service market to produce more blooms for its IT investment buck.

AFS offers software that helps the individual mom-and-pop floral retailers with all aspects of the business, from accounting to order taking to Internet access. AFS brags that technology is its strongest suit, but the company needs to realize that its true differentiator is educational services. Local retailers have access to online classes including how-to's on design and technology. It's these types of services that will make florists loyal transacting members.

But AFS has a tough row to hoe. Thanks to the Internet, less expensive, fresher flowers are quickly becoming a hot commodity—a direct-from-grower approach that threatens wire services like AFS and FTD. Of AFS's competitors, FTD (with its 96 percent brand recognition among consumers) and Gerald Stevens (which hopes to build a Blockbuster-like chain of neighborhood flower stores) directly threaten the offline wire services. The first to enter the online market, 1-800-Flowers.com, represents the strongest online competitor with its wire service and direct-from-grower offerings.

This new business plan cuts out retailers while increasing margins and offering consumers lower prices. Direct-from-grower flowers typically carry lower-handling costs but can often last longer because of the truncated supply chain.

What does this mean to AFS and its retailing members? The introduction of a new marketplace and a decreased consumer demand for wire service flowers threatens the existence of both retailers and wire services as growers take more of the market. A new marketplace brings new challenges.

In the past, wire services were the only way for local retailers to get access to a national marketplace. As more and more retailers consider using the Internet to gain direct access to a larger market without paying membership fees, wire services will begin to find it difficult to justify their existence.

AFS is attempting to combat this by offering its members access to a set of Web-initiated applications (via Eflorist.com) that gives them the ability to promote their products on a cobranded webpage. However, AFS's secret weapon may be its Web-enabled educational emphasis. By offering its educational content, AFS provides added value and incentives for local florists to choose its wire service over others. AFS and similar wire services will need to promote products that direct-from-grower companies can't provide, like professionally designed arrangements and bouquets.

AFS should also consider supporting wireless Internet orders. FTD recently announced a two-year partnership with AT&T Wireless that will enable consumers to purchase products through WAP-enabled devices. If AFS is serious about maintaining its membership ranks, it will need to quickly show its hand for untethered consumer-oriented transaction services.



Stephanie Pawlowicz is a research analyst covering the online gift market at Gomez Advisors in Lincoln, Mass.



Integrate your e-business partners, legacy *and* Internet, without changing your existing applications.

The good news is you can now bring legacy and Internet-based e-business relationships together. The *great* news is the word “re-engineering” – and all that it implies – never enters the picture.

With bTrade.com, you can link the business applications required to create end-to-end e-business relationships today. You can do it in a way that’s proven nondisruptive to the current business processes of either your company or any member of your trading community, new or old. And you can do it at such a price that it will pay for itself in a matter of months.

Our value is clear. bTrade.com will help you extend your existing business model to the Internet – while dramatically reducing, if not eliminating, the associated complexity, risk, time and cost – just as we’ve done for some of the world’s largest corporations and e-business communities.

To learn how we can help you bring your entire trading community together today, call us at 877.4bTrade or visit our web site at www.bTrade.com

scend our normal business and build a network to link all aspects of the floral industry.”

The floral industry has been slow to adopt information technology and even slower to realize the potential of the Internet, says Butler. But he believes the adoption rate will accelerate sharply over the next five years. Meanwhile, he works to form relationships with growers, wholesalers and retailers by sitting on the board of directors of the Society of American Florists and by participating in more than 200 industry trade shows each year.

While pursuing its long-term goal, AFS confronts not only its rivals in the wire services business, but also direct-to-consumer order gatherers who crowd the marketplace. FTD started FTD.com in 1994 as an Internet and telephone marketer of flowers and specialty gifts, and spun it off as a public company in 1999. Another strong presence on consumer websites like Amazon.com and Yahoo is 1-800-Flowers.com. Nance says these order gatherers siphon business away from traditional retail florists—and make them want to be Internet players too.

Websites Ablooming

Victor West is one of those traditional retail florists. The owner of Vanessa's Flowers in suburban Plymouth, Mich., for the past eight years, West says he's using AFS's FMS software to run his store's accounting, billing and inventory systems, along with wire orders (as much as 30 percent of his revenues). He has three employees and four PCs along with DSL Internet service. A member of the Big Three wire services, West says he may drop FTD because of its high fees.

West describes AFS as a quick learner, keeping up with the latest technology as well as with the particular needs of its members. He's particularly pleased with AFS's software that enables him to create his own website, which he says gives him the resources to

Crowded Garden

AFS's rivals include



1-800-FLOWERS.COM: Launched on the Web 1995

Location Westbury, N.Y. **URL** www.1800flowers.com

- Sells a broad range of products such as flowers, plants, gourmet foods and specialty baskets
- Relies on third parties to fill many orders
- Maintains strategic relationships with America Online, Microsoft Network, Snap.com and Yahoo

FTD: Founded 1910 Location Downers Grove, Ill.

URL www.ftd.com

- Is the oldest flowers-by-wire service, with 18,000 participating florists in the United States and Canada, and 55,000 worldwide
- Set up FTD.com in 1994, the Internet and telephone marketer of flowers and specialty gifts

TELEFLORA: Founded 1934 Location Los Angeles

URL www.teleflora.com

- Has more than 27,000 participating florists in the United States and Canada
- Offers products such as a line of floral keepsake containers
- Plans to develop and host e-commerce sites for its members

compete with 1-800-Flowers.com and other direct Internet sellers. “With AFS.com I can have my own site and tailor it to my needs. You can do neat things with it like customize your database to keep track of customers and special occasions, and have the system send you e-mail reminders. I need more [technology] education, but AFS is very responsive,” West says.

Other longtime customers echo West's support for AFS's customer-service-centric and IT-laden approach. “AFS's attitude toward the retail florist is ‘we help you improve, grow your business and be more successful. As you profit, we profit,’” says Bill Hitt, president of Flowers by Louis Hody in Nashville, Tenn., one of the nation's largest, single flower shops that hits in excess of \$2 million per year in sales.

But not all florists are ready to plant the

AFS flag—even while they pursue their own e-commerce campaigns.

Ted Winston, treasurer and co-owner of Winston Flowers, says the business started by his grandfather in the 1940s is among the nation's top 10 in flowers-by-wire orders. Winston's six Boston-area shops use FTD and Teleflora wire services.

Winston appreciates FTD's marketplace clout, but he's concerned about its growing competition with retail florists. When FTD receives orders directly from customers, it then distributes those orders among its member florists while charging fees for the transaction and order placement.

But FTD is only one player. “The consumer has so many choices now. He can go to Yahoo, type in flowers and Los Angeles, check out the websites of dozens of florists and then deal directly with the florist who's going to fill his order. And there's competition from other sources,” says Winston. “Instead of selecting flowers, the consumer can express feelings with gift items from candy to wine to teddy bears.”

Winston's website (www.winstonflowers.com), up-and-running since the beginning of this year and designed by the Internet Technologies Group in Boston, accounts for only about 5 percent of his overall business. Winston believes it will generate incremental sales as more of his traditional customers go to the site instead of ordering by phone.

Winston's lukewarm embrace of the Internet suggests that AFS will meet some big hurdles in implementing its strategy.

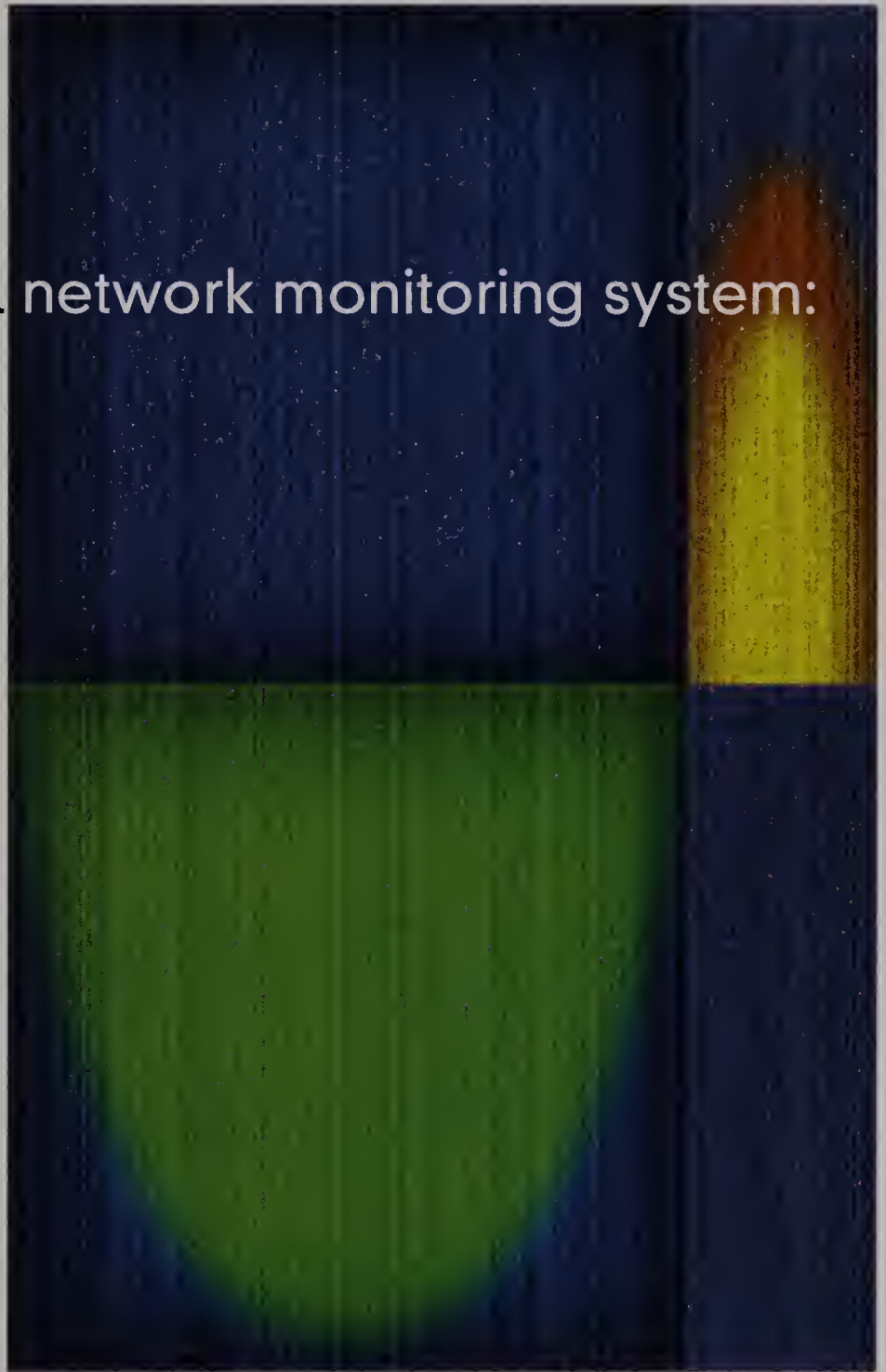
Butler says he knows that AFS has a considerable distance to travel to become the floral industry's Internet company. But he believes that AFS has made significant progress, and he's committed to making the journey. **CIO**

James Barron is a freelance writer in Brookline, Mass. Will AFS win? Tell us at letters@cio.com.



Weather report on our virtual network monitoring system:

Mostly BLUE with scattered GREEN.



How's the weather on **your Internet Backbone?**

(see how it works @ onecall.net)

1 800 876 1300

Internet Backbone. Co-Location.

| onecall.net





Simon & Schuster CIO Anne Mander says IT executives' profiles are rising as publishers recognize technology's role.

Books aren't going away. But new technologies are sparking changes for a centuries-old industry—and pushing CIOs from the backlist to the spotlight.

BY TRACY MAYOR

The Next Chapter

UNLESS YOU'VE BEEN SLEEPING as soundly as a princess for the past six months, it'd be impossible not to notice that summer 2000 was the season the electronic book finally barged into public consciousness like a battering ram. Publishing's dream boy Stephen King, himself newly packaged following a near-fatal car accident that shattered his right leg, started the assault this spring. Simon & Schuster released King's *Riding the Bullet* as an e-book, making it available in a digital form online (an e-book is the encrypted, digitized contents of a book, from jacket image to index). More than 500,000 copies of the novella were snapped up in a day by the author's notoriously rabid fans, e-book enthusiasts and just plain bargain hunters (reportedly, as many as 300,000 free copies were distributed). Simon & Schuster, apparently pleased enough with those numbers, announced it would make all

of suspense novelist Mary Higgins Clark's 22 mysteries available electronically just a week after striking a \$64 million deal to publish four of her new works. Then in July King upped the ante, self-publishing on his website Chapter 1 of a new novel, *The Plant*, saying future chapters would be available if readers paid \$1 per installment.

King isn't the only print veteran showing enthusiasm for digital publishing. Floor-to-ceiling banners in suburban Barnes & Noble bookstores urged would-be authors to send their brilliant-yet-somehow-undiscovered works to iUniverse.com, an online vanity publisher of sorts in which the bookstore giant bought a 49 percent share. Time Warner took time out from its summer nuptials with America Online to announce it was forming iPublish.com, an effort to solicit, distribute and nurture new works online. Microsoft staked out turf and promoted its

Reader ROI

See how new technologies force changes for players in a long-standing industry

Explore how new industry players push older ones to action

Understand challenges facing IT executives with new, higher profiles

Reader software by teaming up with Random House, Simon & Schuster and Barnesandnoble.com to offer free e-book versions of Michael Crichton's novel *Timeline* and a handful of *Star Wars* titles for Pocket PC handhelds.

Truth be told, the publishing industry is in the throes of enormous technology-driven change, and the large trade publishers are responding with varying degrees of agility, savvy and defensiveness. But the revolution has been underway for a while now,

and the electronic book is only the most consumer-friendly aspect of a much deeper, enterprisewide move to automate, archive and streamline what has been an archaic and inefficient production chain.

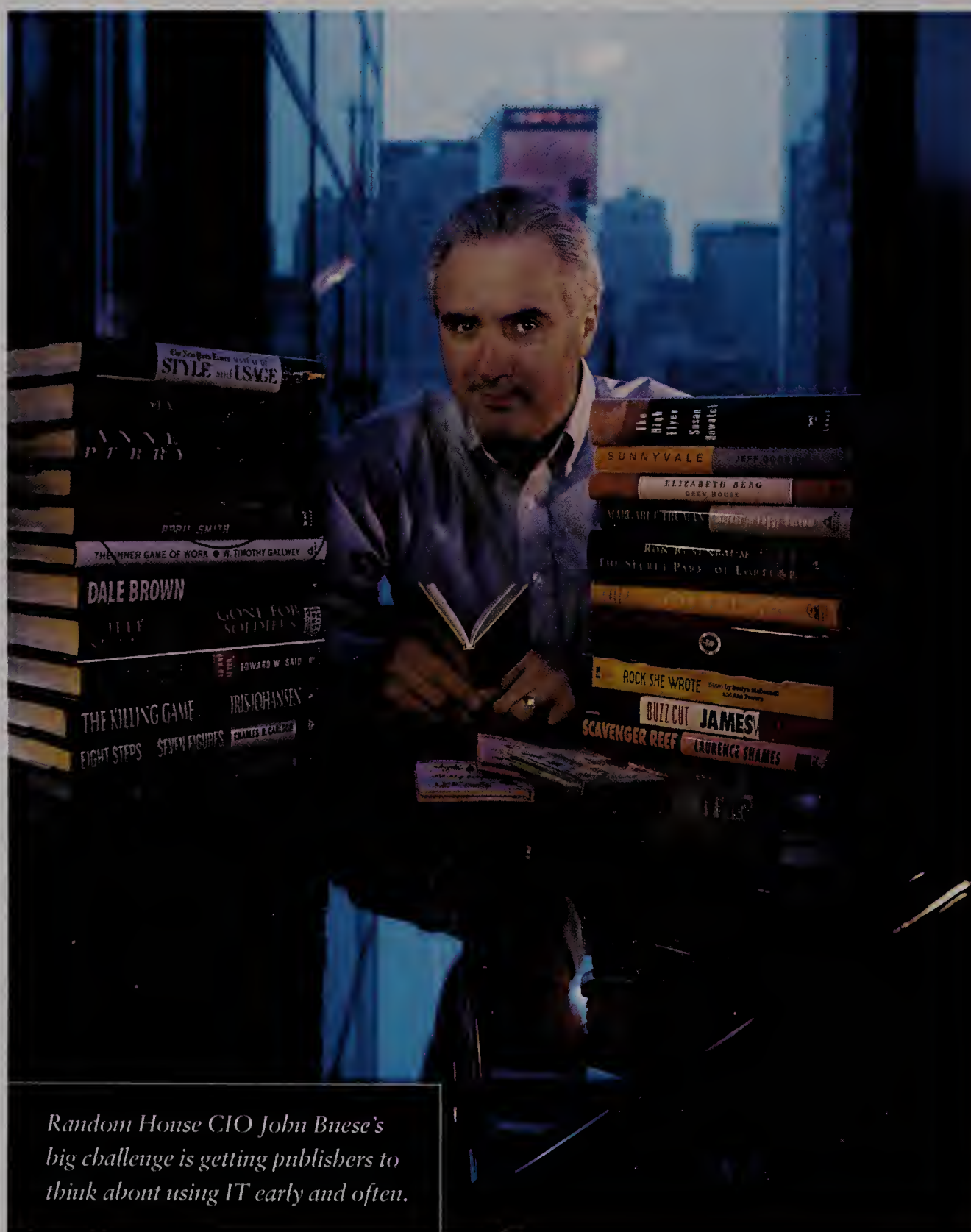
This is a business that has centuries behind it, after all, and information technology has been a backroom concern—until now. “I wouldn’t call them dusty, but most publishers haven’t before seen IT as a necessity to their business,” says Anne Mander, CIO and senior vice president at Simon &

Schuster in New York City, and former CIO for HarperCollins in North America. “Now they’re realizing that they’ve got to start including technology as part of their business plan. A lot of IT people have always had some good ideas, but we weren’t on the artistic side. Finally we’re recognized as somebody who needs to have a voice.”

And with this validation comes pressure for IT managers: Use this technology-driven churn to bring corporate systems and mind-sets into the digital age in record time.

Most publishers have created new-media type departments that ink the deals with the dotcoms, sit on the standards bodies and try to guess which technologies will dominate in a crowded and confusing market (see “Souls of New Machines,” Page 118), but that doesn’t mean publishing-house CIOs are standing idle as the revolution passes by—well, most aren’t, at least.

The CIOs are busy managing the seemingly constant mergers that have reorganized corporate publishing in the last decade; reshaping aging, piecemeal telecommunications systems into a single, companywide information architecture; building the digital-asset archives that will eventually store a single electronic copy of each of a publisher’s current and backlist books; launching enterprise-management systems to streamline workflow; pumping point-of-sale data into existing warehouses to get better forecasts and fewer print overruns; working with those new-media groups to add e-commerce to what have been product-showcase-only websites; and, oh, yes, overseeing the payroll, human resources, production, sales/marketing and other bread-and-butter systems that actually help publishers turn a profit while the e-volution rages around them.



Random House CIO John Buese's big challenge is getting publishers to think about using IT early and often.

PHOTO BY EDWARD SANTALONE

funny, but a partial e-business solution tends to solve only part of the problem.

With so many options to make your business an e-business, the trick is separating the real solutions from the incomplete. To that end, if you're not looking at the big picture, it's inevitable that what you choose will come up short. With mySAP.com™, you can count on getting a fully integrated, comprehensive e-business solution, from B2B procurement and supply chain management to customer relationship management. We've helped more than 22,000 businesses in 21 industries to be successful. And we can help yours, too, no matter what size your company is. Want to know more about how our seamless, fully integrated, real-time solution can turn your business into an e-business? Visit us at www.mysap.com and you'll see.

you can. **it does.™**

For Whom the E-Book Tolls

With the possible exception of Dick Brass, nobody is (yet) saying the book is dead, but it's clear digitization will morph it in ways that make it nearly unrecognizable. Brass, Microsoft's voluble vice president of technology development, waxes poetic on the fate of Gutenberg's 550-year-old invention even as he drives an eloquent nail in its heart. Typical quotes: "Books are a thing of beauty, but so are horse-drawn carriages"; "We Boomers are paper-trained by nature, so books will be around until we're dead."

The "p-book"—a locution reverse-engineered, of course, from e-book—"is a form of intellectual merit badge" that people love to collect and display, Brass says, but why cling to such sentimentality when you can easily download and bring with you on your next European holiday 10 of the most popular guidebooks of the region? One search across all 10 titles leads you effortlessly to the best restaurant in town. Vacation reading takes on a whole new meaning when you can carry five or six (or 10 or 20) novels you've been meaning to read all year.

E-books can be enhanced with audio or video (how about a clip of J.K. Rowling discussing the finer points of her *Harry Potter* plots, or a demo of new application development tools for your website?) and updated when new data becomes available, as encyclopedias on CD-ROM are now.

Textbook and business book publishers, many of which already do a brisk business in custom courseware for teachers, envision a Web-based system that lets professors pick-and-click chapters and other discrete chunks of material from an online database of thousands of books and periodicals to build a volume tailor-made for the class, time and term they're teaching. Since copyrights are assigned to each piece, the book would already be cleared to be printed by the publisher or e-mailed to a university print shop or downloaded to individual students.

There are some problems yet to be worked out with such slice-and-dice scenarios, points out Chris Hogg, director of new Web/publishing technologies at Houghton Mifflin Co.

in Boston. For example, once a textbook has been broken up, what happens to its cross-references, its glossary and its index? Still, the powerful customization, searching and archiving abilities of electronic textbooks stand to aid Houghton's primary audience, teachers. Hogg sees, for example, being able to easily include up-to-the-minute state curriculum standards alongside Houghton's current offer-

ings of books and teaching materials.

E-books also offer a chance to deliver new types of writing in different-size formats that better suit the work and the people interested in reading it. Fatbrain.com, which carved an early niche in the online market by selling books, training materials and print-on-demand documents to the business and academic community, recently

Souls of New Machines

Players in the publishing industry must keep tabs on these areas in the digital revolution

FILE FORMATS While a number of e-book reader software programs vie for supremacy, publishers can format their books to OEB, a nascent standard developed by the industry group Open eBook Forum. These generic files can be further customized to work with a particular e-book reader. Competing file formats include Adobe PDF (which has the largest installed base), Microsoft Reader and Glassbook Reader (an emotional favorite among e-book evangelists), along with formats from NetLibrary, NuvoMedia, SoftBook and Versaware.

DIGITAL RIGHTS MANAGEMENT DRM comprises electronic copyright protection (from vendors like InterTrust Technologies and Xerox) and an electronic locking "envelope" that determines how and when an e-book file is opened up, and by whom. Reciprocal is the big player in this area, called digital-clearing. The Electronic Book Exchange (EBX) specification—a copyright and distribution standard backed by Glassbook, Adobe and others—is in the works.

TYPE TECHNOLOGY Subpixel technology allows small type to be displayed much more crisply on LCD screens, thereby making the electronic reading experience (industry players hope) more attractive to consumers. Microsoft's ClearType, now in its Reader software, will be folded into Windows. Adobe's CoolType is slated to make its way into the Adobe Acrobat reader.

HARDWARE NuvoMedia had RocketBook. SoftBook Press had Reader. Each was roughly the size of an open paperback with a backlit display and other features. Everyone liked them, but nobody (or next to nobody) bought them. Gemstar International Group purchased both companies and has contracted with consumer-electronics giant Thomson Multimedia to build a mass-market device that should debut in time for Christmas 2000. The Microsoft-backed Pocket PC and the Palm handheld can also support e-books. Purists worry the tiny screens will only turn potential readers away from the e-book, but the devices' popularity could drive the market.

—T. Mayor

There's an easier way to manage your corporate IT services supply chain...



At Changepoint, we know that effective service delivery is the core of every corporate IT department. That's why *Changepoint for Enterprise IT* software was specifically designed to help corporate IT departments manage their entire IT services supply chain – leveraging the Internet to enable close working relationships with staff, clients, suppliers, partners and contractors across a common B2B infrastructure.

Changepoint for Enterprise IT and *myChangepoint.com*, a Web-based portal that seamlessly integrates with *Changepoint for Enterprise IT*, provide completely consolidated management of your corporate IT services from line-of-business client relationship management to engagement management, project management, time & expense, contractor/resource management and invoicing/cross-charging.

So before the next ball drops, see it coming with *Changepoint for Enterprise IT*.



Strategic Technology for Fearless IT Leadership.

www.changepoint.com or call 1-800-263-7189.

Join Changepoint at the CIO Perspectives Conference on Monday, October 16th at 1:45pm for a presentation by Juana Clark, Director of Application Management, Baltimore Gas & Electric.

launched and spun off MightyWords.com, a site dedicated to works like speeches and short stories that don't turn a profit under the traditional publishing models. And it's no coincidence that Stephen King's e-offering was a novella, a short-fiction form that's traditionally a hard sell in the hard-cover or paperback approaches of the large trade publishing houses. In cyberspace, where there are no line lengths, publishers could sell books a chapter at a time, or offer an all-you-can-read subscription service to its entire digital library.

"Publishers are locked in to a mind-set of 'this is how we do books,' but the Web doesn't have any physical limitations," observes Forrester Research analyst Daniel O'Brien. "This is a much more fluid medium, and there is an opportunity here to surface different kinds of creativity. Poets could sell individual poems to an audience that cares about that kind of thing."

E-books may account for as much as 10 percent of the market for adult consumer books by 2005, with sales totaling \$2.3 billion, according to a study prepared by Andersen Consulting for the Association of American Publishers.

Hoping for at least a slice of those sales are Web-based startups like Fatbrain.com; NetLibrary, which helps libraries and corporations make available to their members a wide variety of scholarly, reference and professional e-books; PeanutPress.com, an online store recently purchased by NetLibrary that converts and then sells to consumers books and periodicals for the handheld computer market

(PalmPilot and its ilk); Glassbook, an early player that offers both reader software and a content-server program to help companies automate the e-book supply chain; and Versaware, a service company that offers publishers a "digital content exchange network" of programs for conversion, secu-

rity, enhancement, e-commerce fulfillment and archiving. And that's not even including the many companies trying to dominate the nascent market for digital-rights software or the many "fan sites" that offer public-domain e-books for download free of charge.



At Harry Potter publisher Scholastic, CIO Maurice Greenfield is installing an ERP system for demand forecasts.

B-TO-B INTERNET SOLUTIONS FOR SERVICE COMMUNITIES

**BETTER SERVICE.
HAPPIER CUSTOMERS.
HIGHER PROFITS.**

Imagine a solution that allows your entire service community, including your employees, as well as your customers, partners, vendors, and suppliers, to work and collaborate on the Web.

Imagine a solution to your workforce management needs—a solution that supports mobile field engineers using wireless PDAs and cell phones.

Imagine your service operation fully integrated and running at peak performance—with solutions for managing service level agreements, enabling customer self-service, automating repair returns, and providing auction-based asset procurement and replenishment.

You don't have to imagine it.
It's here today. ViryaNet Service Hub.

For details: www.viryanet.com

800-661-7096



VIRYANET
e-Service@NetVelocity

The Road to Be Traveled

Next to such eager beavers, the big trade publishing houses can seem hopelessly conservative, out of the game or both.

Versaware CEO Harry Fox, who like his colleagues at other startups is something of an e-book proselytizer, says, "going to the Frankfurt Book Fair is like walking through Disney's *Dinosaur* movie." While publishers have taken some small steps toward automation—particularly in the areas of inventory management and laser printing technology, which is far cheaper and more flexible than traditional offset printing—the concept of an electronic publishing business model, from creation to consumer, hasn't become ingrained (see "Mostly Quiet on the E-Front," below). "They're scrambling," Fox

says of the large trade publishers. "They're going to have to adapt very quickly, be purchased or go out of business. This is all going to happen very fast, in two years," he predicts.

Microsoft's Brass, whose own large company has partnered with a lot of these dinosaurs, is more inclined to take a longer view, but he too agrees the next two years will make or break a lot of publishers in the electronic arena. "These guys didn't jump willy-nilly to convert everything they own. They've been carefully watching and measuring the impact to see if there's going to be a market," says Brass. But the days of conservative watchfulness are over. "If they ignore the market now, they're in great danger."

If publishers are going to stay in the game,

analysts, industry and Internet executives agree, they need to get cracking on a to-do list that's not so much long as it is prickly in places. First, publishers must convert both their current list and their backlist books to a digital format compatible with the Open eBook standard-in-progress, with the idea that these relatively generic files can then be easily converted to fit one or all of the competing e-book reader formats until a clear dominant reader emerges in the marketplace (if ever). They must archive this digital library in a way that's both flexible, to achieve maximum process efficiencies, and safe, to ensure from the outset that copyrights are created for and travel with their data. That's assuming, of course, the publishers own the digital rights to the works in

Mostly Quiet on the E-Front

BY JASON COMPTON

TRADITIONAL PUBLISHERS say they are making digital plans, but judging by the industry's big trade show, the lasting effects from an e-book revolution will have to wait.

The year 2000 is no different from 1980 or 1960, according to publishers' booths at Book Expo America held last June in Chicago. Rows of hardcover books were the norm, with scarcely a word breathed about emerging technology. Random House, one of the show's largest exhibitors, went so far as to leave its booth's few computers turned off.

Conspicuously absent from the show floor was Gemstar, owners of the Rocket eBook, although they sent emissaries to technology panels. And Amazon.com limited its presence to a large logo banner outside the hall and a modest booth to promote its affiliate sales program.

Technology presentations emphasized copyright protection and usage limits in the online and e-book environment (delivering interesting and affordable content was a distant second). Convoluted plans to encrypt PDF files with unique code keys, methods for charging users to quote text and implementing library-like notions of check-in/check-out systems to online reference materials were the order of the day from companies like Ebrary, Glassbook, NetLibrary and SoftLock.

Do these kinds of efforts make sense, given the Internet's

potential to unleash open access? "No, but the industry is in a transition period right now, and this is what the publishers can accept," replied one technology vendor representative who asked not to be named.

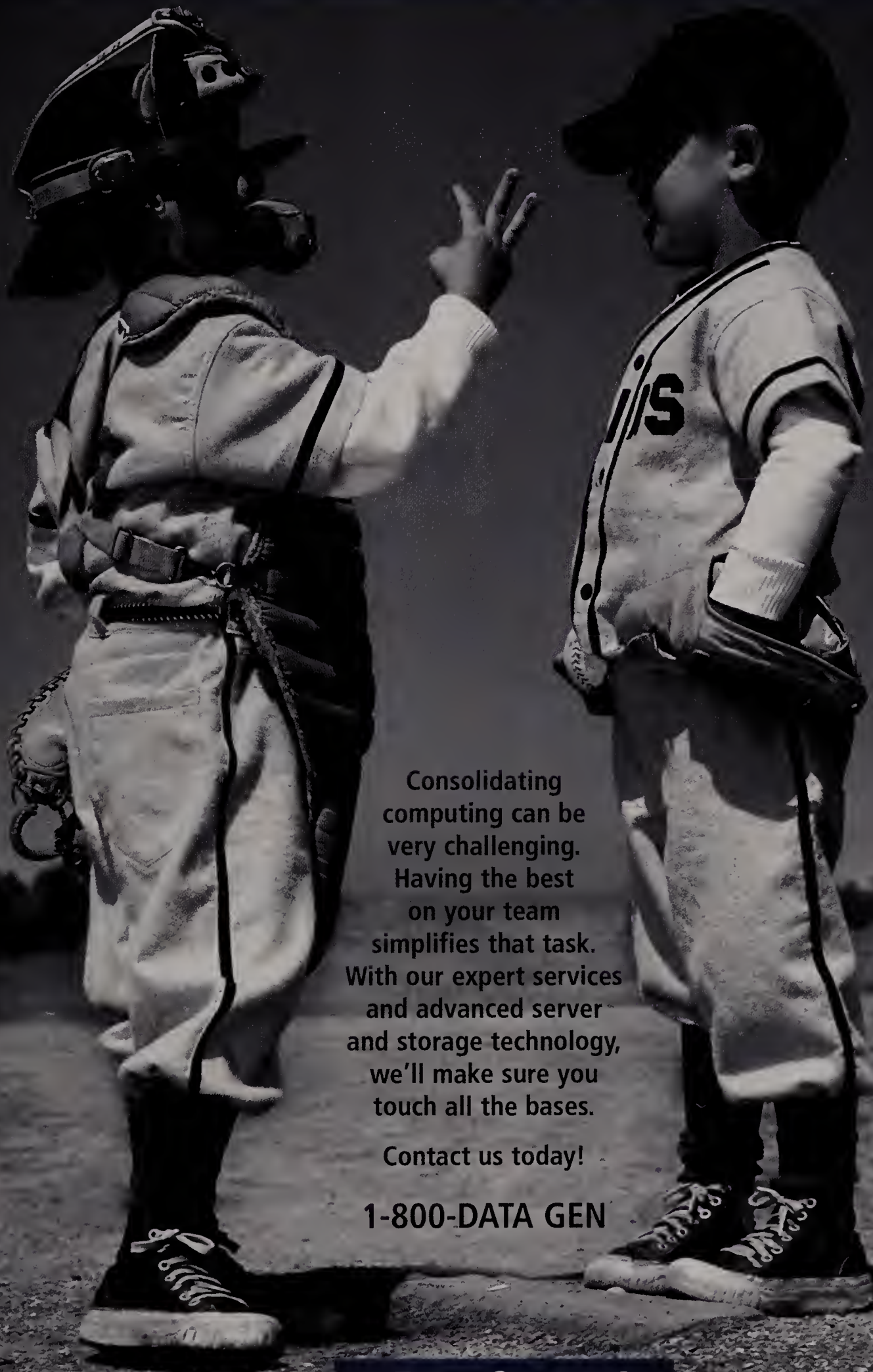
To their credit, traditional publishers do seem to be embracing the movement to store their content in standard digital formats.

New York City-based John Wiley & Sons (despite a very traditional booth) is aggressively converting its catalog to XML and other common formats to take advantage of the potential to reintroduce titles through on-demand print shops, or as e-books when they see fit. Gwen Jones, director of systems and special projects for John Wiley & Sons, says the company plans to introduce standard electronic templates and storage for its publications, including 200-plus professional journals.

The lasting impression from the show is that the book industry values its traditions. Case in point: One small bookseller at an e-book panel discussion got a titter when he asked, in all seriousness, how the spread of e-books would protect consumers from a flood of unreadable, lousy writing.

Jason Compton is a freelance writer in Evanston, Ill. He can be reached at jcompton@xnet.com.

Get it straight! Simplify, Control and Consolidate.



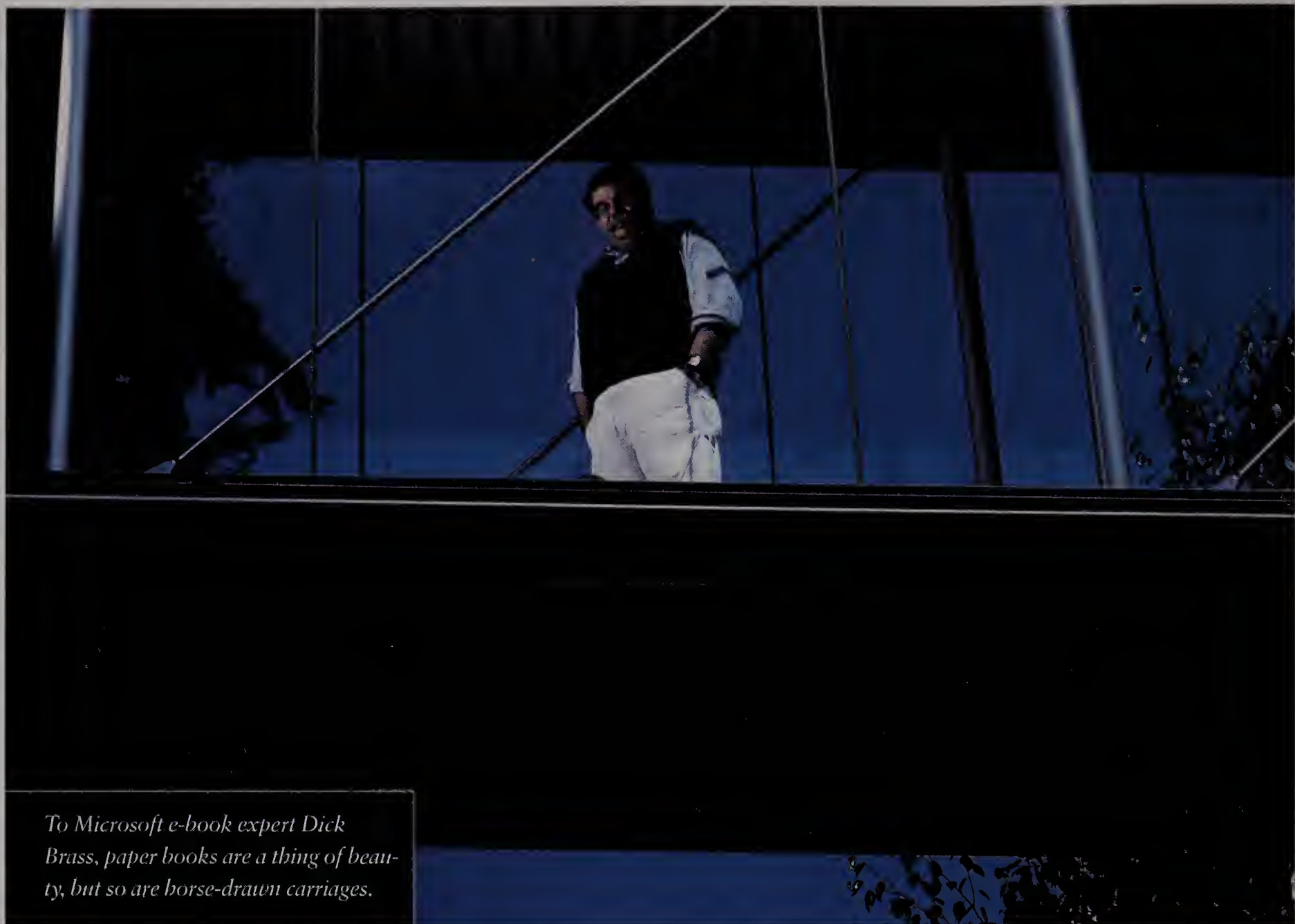
Consolidating
computing can be
very challenging.
Having the best
on your team
simplifies that task.
With our expert services
and advanced server
and storage technology,
we'll make sure you
touch all the bases.

Contact us today!

1-800-DATA GEN

 **Data General**
A Division of EMC

www.dg.com



To Microsoft e-book expert Dick Brass, paper books are a thing of beauty, but so are horse-drawn carriages.

question, a point that is rarely clear on older backlist titles.

Then publishers need to decide on a price point for their digital offerings—one that turns a profit but also sits well with a savvy public that knows a digital offering simply doesn't cost as much to manufacture and distribute as a wood pulp, cloth and glue product. Pricing is a particularly touchy point in the industry: Some publishers worry the Stephen King giveaway did more harm than good. If Stephen King costs nothing, why pay even a dollar for some new, unknown novelist? The author shouldn't be left out of this profit-sharing exercise either, lest she bolt, set up an e-tail site and start hawking books directly to the public, a very real scenario under the new world order of the Internet.

Digital asset management—the creation

and maintenance of that digital archive—is one of the key pieces that prepares publishers for participation in an e-commerce market as well as allowing them to tap their own backlist of out-of-print books for shorter, print-on-demand runs that can keep quiet sellers before the public eye and making steady, if modest, money. But there's more to the process than simply digitizing existing books. "Publishers need to rethink the way that they produce content, the way they manage the creation process," says Andres Sadler, associate partner in media and entertainment strategy practice for Andersen Consulting in New York City. "Some publishers are already reengineering processes to make them more efficient."

The goal is to ingrain digitization in the publishing process from the outset rather than adding it as an afterthought. "You're

asking people to do things in a whole new way," says Kate Tentler, vice president and publisher of Simon & Schuster Online. "The biggest challenge of the Internet society is asking people to completely change their systems. You need to do and build it to be in the market, but it's a huge undertaking. I feel for people who have to go through it."

Even though some third party—a PeanutPress, a Versaware or a Glassbook—will likely be charged with printing and formatting publishers' electronic matter for the short-term at least, decisions regarding the digital archive are still a struggle, says Simon & Schuster CIO Mander. "We still need to hang on to our own copy of our own content, and that's a huge amount of data. Everybody's looking at what's the best model to get that content in a form that's usable and reusable."

Worried about ND*?



ND: Network Dysfunction

Symptoms Include:

- ✓ Premature application time out
- ✓ User satisfaction concerns
- ✓ Stability issues
- ✓ Performance guarantee problems
- ✓ Response time degradation
- ✓ SLA guarantee dilemmas
- ✓ Loss of bandwidth control
- ✓ Poor efficiency
- ✓ Stifled application enablement

These are classic signs of ND. ND affects every company from small enterprises to large service providers. If not controlled your business is at risk, and your competition knows it.

Now, Sitara Networks is just what the doctor ordered to add the necessary layer of intelligence to your network to prevent and cure ND.

We're the 1st company to deliver an integrated and modular QoS (Quality of Service) platform world-wide that integrates bandwidth

management and transparent caching into an open hardware and software architecture. And we're the 1st company to guarantee the benefits of the product – *or your money back.*

By partnering with industry leaders, including Citrix Systems Inc. and Sumitomo Corporation – Sitara protects your network with holistic QoS.

 **SITARA**
Networks™
Making Networks Smarter

www.sitaranetworks.com

Habits of Highly Effective People

At Random House, Vice President of Information Technology and CIO John Buese has been working on a digital asset management system for two-plus years, which counts as a head start in the industry. In searching for ways to leverage digital content, the company was preparing for not just the potential e-book market, but for efficient business operations all the way around, Buese says. "Our thinking was, if we start creating this stuff digitally, if we have a repository, then we can create files for mass printing or for print-on-demand or for e-books."

Though he spends a lot of time meeting with and assessing the various would-be players in the e-book reader and copyright-protection market, Buese, like his colleagues at Simon & Schuster, finds the most difficult job is not navigating the marketplace but changing the corporate mind-set. "The real challenge is how to institutionalize this into the process. You have to work with your art directors, production department, all the processes to embrace digital creation from the outset."

All this frenzied archive-building doesn't seem to have rattled the cage of Maurice Greenfield, CIO at Scholastic. While the children's book publisher has digitized and stored metadata on its books—such as the PDF of the latest *Harry Potter* book cover sent to Amazon.com—there is no concerted effort afoot to digitize every book Scholastic ever offered, according to Greenfield. "If and when people need it, it wouldn't be a big deal," Greenfield says.

That doesn't mean Scholastic isn't playing in the new economy of the Web.

Scholastic has a three-part Web strategy, headed up by Ruth Otte, executive vice president of the software and Internet group. The strategy calls for first attracting new and existing customers to the site and supporting their online book-club activities, which reach some 1.8 million teachers nationwide and rack up \$350 million in business. Phase 2, now in beta, is designed to commerce-enable the websites so that teachers can order books (and other classroom materi-

als) through the Internet. Next year, the company plans to add a professional-development component, with online seminars, digital curriculum services and so on.

When the book club sites were serving up content only, Otte says, she had limited interaction with Greenfield. This summer they were in contact almost daily. "We're hammering out how and what kind of access we need to legacy information and deciding what portions of the databases in the back will be brought to the front for customer and promotional purposes," says Otte.

For his part, Greenfield says it makes sense for Otte's group to handle the presentation layer of the e-commerce project, and yet he declined to characterize his department's contribution as back-end only. "We will have e-sellers [that market books online] coming directly into my databases. That's not back-end," he points out.

Also, Greenfield simply doesn't have time to worry much about what's been on Otte's plate; his own is full. Greenfield's department is starting to put together an ERP system to deliver more sophisticated demand-forecasting capabilities and tighten Scholastic's supply chain. And Greenfield has just finished building a set of logical data models as a preliminary step toward cleaning up and integrating customer and product databases throughout the company. The goal is to give executives an easier way to view internal operations and interactions with suppliers and customers.

In a way, Scholastic's close relationship with its customers—a loyal group of teachers who have been members of its book clubs for years—makes it easy for the company to set its goals in the electronic age, Otte says.

That kind of specific customer-focused

business is rare in the world of trade publishers, which buy, produce and distribute books without any clear indication of how the product will fare in the marketplace. "Publishers risk losing the younger audience to other forms of media," says O'Brien. "They need to condition their audience to look for-

Afterword

Since CIO reported this story in June, publishing industry players have been keeping the e-publishing pot boiling.

July 24 Stephen King started selling chapters of *The Plant* directly to readers via his own website, www.stephenking.com.

July 31 Random House set up AtRandom, a new unit that will publish digital books next year.

Aug. 1 Time Warner Books' iPublish.com unit unveiled its first list of e-book titles.

Aug. 8 Barnesandnoble.com opened an "eBookStore" to sell retail electronic books digitized in the Microsoft Reader format.

ward to an author's next book and to read reviews. They ought to be training the next generation of consumers, and digital books can help with that."

Indeed, with the advent of better forecasting abilities, Web-based interaction and the customization possibilities offered by the e-book, the customer may wind up becoming the love interest in the next chapter of publishing. And that's just fine with new-publishing leaders like Time Warner's Greg Voynow, the general manager of iPublish.com. "We're trying to go from being in the book business to being in the reading-experience business." **CIO**

Are book publishers doing enough to meet the challenges facing them? Write us at letters@cio.com. Tracy Mayor, a freelance writer in South Hamilton, Mass., can be reached at tmayor@mediaone.net.

On the road to convergence,
how strong is your engine for change?

Be.



© 2000 Telcordia Technologies, Inc. All rights reserved.

Become.

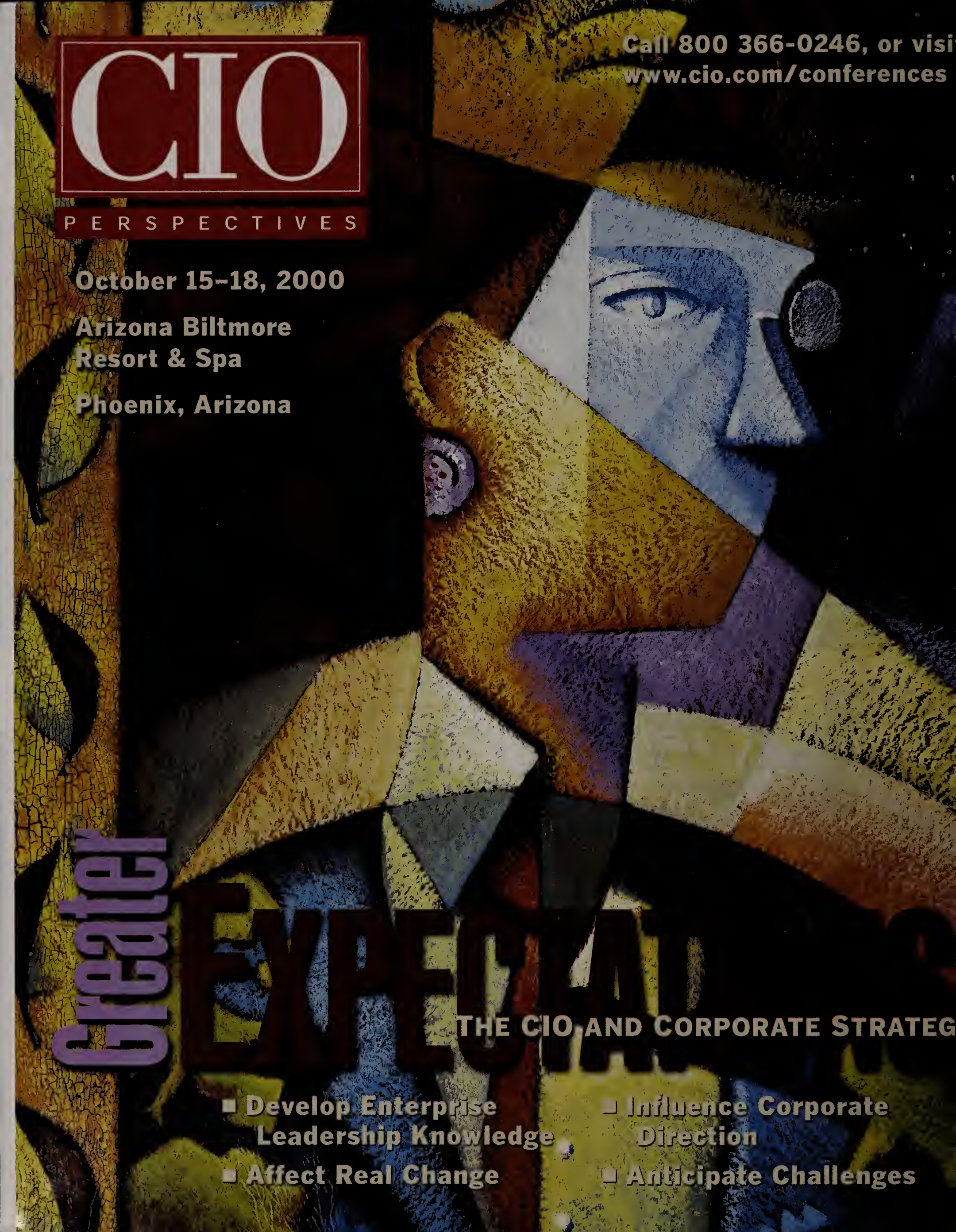
Telcordia is your powerful engine of transition—to drive your business where it needs to be.

We propel your next generation IP and E-commerce solutions with reliability honed from engineering the most reliable networks in the world. We're at the forefront of developing and deploying Next Generation, packet-based multimedia networks.

This is vision to expand your capabilities and power to accomplish it now. We're the world's largest supplier of OSS software and services to automate operations. Our Intelligent Network architectures help you generate new services and new revenue. We created open standards and we're setting new ones.

Because, as you know, your business can no longer just be. You must become.

 **TelcordiaTM**
Technologies



CIO

P E R S P E C T I V E S

October 15-18, 2000

**Arizona Biltmore
Resort & Spa**

Phoenix, Arizona

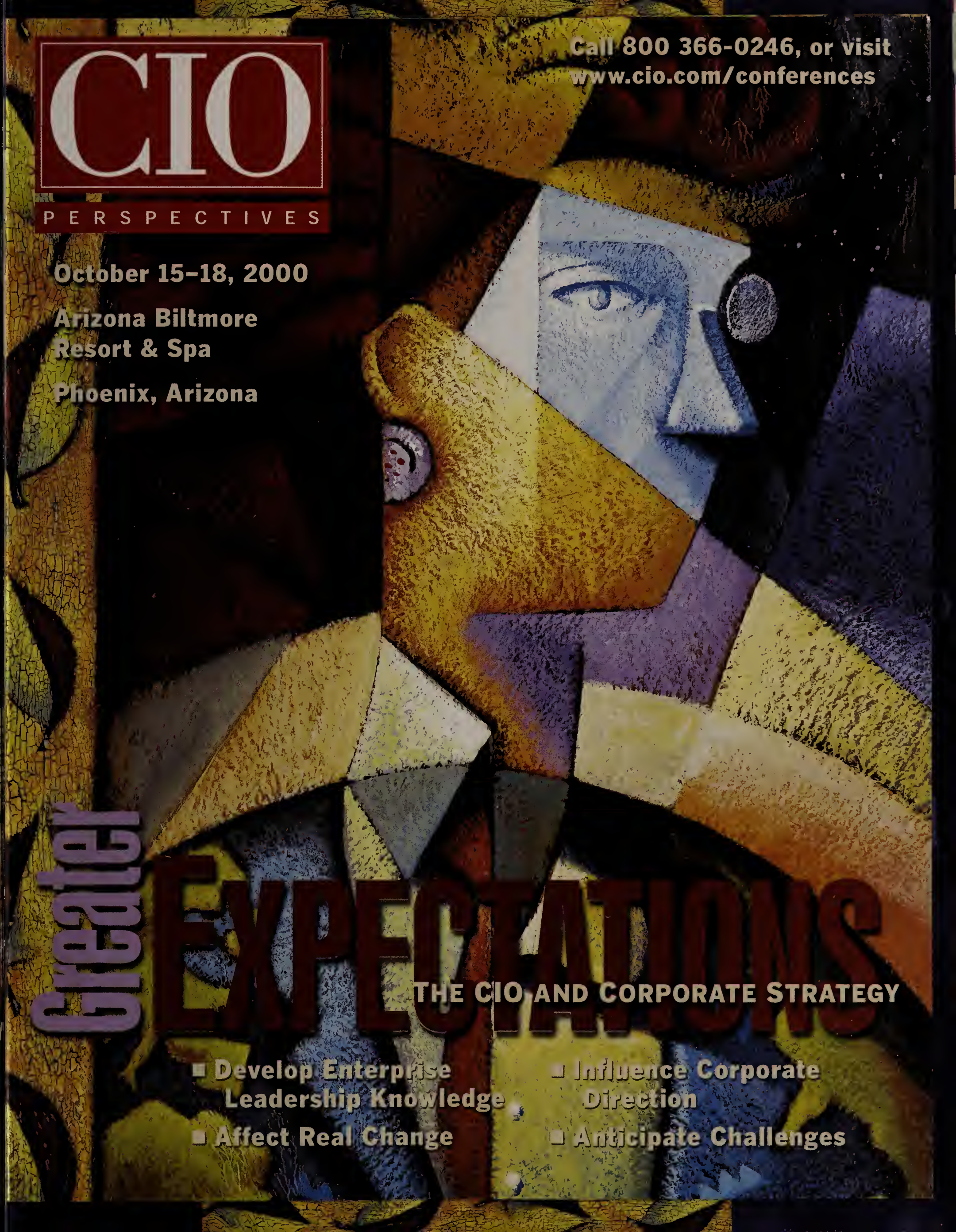
Call 800 366-0246, or visit
www.cio.com/conferences

Greater

EXPECTATIONS

THE CIO AND CORPORATE STRATEGY

- Develop Enterprise Leadership Knowledge
- Influence Corporate Direction
- Affect Real Change
- Anticipate Challenges



CIO

P E R S P E C T I V E S

Call 800 366-0246, or visit
www.cio.com/conferences

October 15-18, 2000

**Arizona Biltmore
Resort & Spa**

Phoenix, Arizona

Greater

EXPECTATIONS

THE CIO AND CORPORATE STRATEGY

- Develop Enterprise Leadership Knowledge
- Influence Corporate Direction
- Affect Real Change
- Anticipate Challenges



TABLE OF CONTENTS

CONFERENCE

OVERVIEW 2

THE CIO AND CORPORATE
STRATEGY: IT'S ALL
ABOUT GREATER EXPECTATIONS 3

AGENDA 7

BUSINESS
BRIEFINGS 10

VENTURE
ONSTAGE 13

CORPORATE
HOSTS 14

ARIZONA BILTMORE
RESORT & SPA 19

ENROLLMENT
FORM 20

CANCELLATION
POLICY 20

COVER ILLUSTRATION: TIM LEE

overview

Greater Expectations: it's all about more. More responsibility for business strategy. More complexity in a 24x7 global e-commerce market. More technology coming at you. More scrutiny from the executive management team. More risks. Hopefully, more rewards.

How these new expectations will impact you, what they mean for your organization, and what they portend for the future of both are at the heart of the next CIO Perspectives® conference, **Greater Expectations: The CIO and Corporate Strategy**, October 15-18, 2000 at the Arizona Biltmore Resort & Spa in Phoenix.

We'll explore why it's crucial for the CIO to be a leading force in shaping and driving corporate business strategy, as you join with noted authors, experts, and your peers to dissect key aspects of this additional role for the CIO.

Fellow CIOs Sandy Goldstein of Airgas, Inc. and David Aldridge of Home Shopping Network share their approaches to understanding the depth and breadth of the changes in the business environment today, and how that is reflected in their strategies. Yale School of Management's Jeffrey Garten stresses the importance of rethinking everything when you go global. Michael Earl, acclaimed business author and professor of information management at London Business School, presents the results of new research he'll be conducting this summer on what it takes to be — and what is expected of — a CIO. Avon's CIO Harriet Edelman talks about translating high-level strategies into actionable plans for aligning IT to business needs. And Richard Barrett, author of *Liberating the Corporate Soul: Building a Visionary Organization*, explains what cultural capital is and why it should matter to your overall business strategy.

You won't want to miss our new Venture OnStage session, where five CEOs present what they each hope will be the next technology blockbuster.

You'll also be able to meet with executives of our Corporate Host companies during their business briefing presentations, and in a more informal atmosphere during breaks in the display area.

To enroll, fax the enrollment form (on the back cover) to 508-879-7720, call us at 800 366-0246, or enroll via the Web at www.cio.com/conferences. The Web site also contains news and information on the agenda, companion program, Venture OnStage, travel and hotel information.

We think this program will be especially provocative, and we look forward to seeing you in Phoenix!

Lynda Rosenthal

Lynda Rosenthal
Executive Vice President and
General Manager, Executive Programs
CXO Media, Inc.

Gary J. Beach

Gary Beach
Group Publisher
CXO Media, Inc.

welcome

Greater It's all about EXPECTATIONS

THE CIO AND CORPORATE STRATEGY

TAKE THE LEAD ... OR GET LEFT BEHIND

Using data and examples gathered in the summer of 2000 from the USA and Europe, Earl documents how significant organizational and strategic market forces are

GLOBALIZATION OF THE ECONOMY, increasingly complex technology demands, the need to formulate and drive corporate strategy, the Internet and e-commerce — these are just some of the forces pressing on today's CIO.

Clearly the very concept of what it means to be a CIO is undergoing a radical transformation. Now, more than ever, the CIO is being asked — no, required — to master many domains. From inveterate leader of a group of highly-skilled professionals tasked with constantly adapting the enterprise's infrastructure, to business visionary capable of recognizing the changing needs and seizing bottom-line opportunities — this is not your old-style CIO.

In our much-ballyhooed new economy, CIOs will figure in every tactical and strategic direction the corporation undertakes. The demands are as daunting as the potential rewards are unlimited. What's it all about?

It's about **Greater Expectations: The CIO and Corporate Strategy**, of course — the theme of the October 15-18, 2000 *CIO Perspectives* conference at The Arizona Biltmore Resort & Spa in Phoenix.

To get a more meaningful view of the 'greater expectations' now facing

CIOs, we turned to several well-known and respected authorities for their insights and advice. What we discovered confirms that the current dialogue regarding the transformation of CIOs — and the importance of their involvement in corporate strategy — is not just hype. Indeed, Michael Earl, Professor of Information Management and Director, Center for Information Management at the London Business School, has extensive research data documenting the emergence of a model CIO for the New Economy.

affecting IT practices and reshaping the role of the CIO.

"My research shows that CIOs are being asked to substantially increase their participation in shaping the strategic direction of the company, to accept more responsibility for initiating business change projects, and to become more aggressive in introducing new technology into the organization," he reports.

Based on his research, Earl has created a "model" CIO for the future that other CIOs can use to position themselves. "I have data clearly demonstrating the evolving role of the CIO, from the last five years to what I believe the CIO will look like five years from today," he says. "I hope CIOs will be able to assess their own experiences and capabilities against the model CIO suggested by my research, and construct a personal development plan to equip them to become new-economy CIOs."

Among the skills this new breed of CIO will need to meet the challenges posed by a global, Internet-based economy, he says, are "technical com-

welcome

It's all about Greater Expectations

petence, business acumen, and the ability to lead people."

Technical competence, Earl notes, comes from years of experience within the IT function. The key to acquiring the more non-traditional knowledge they'll need is for "CIOs to spend more time outside the IT department and outside the organization."

MEASURE THE INTANGIBLES, AND HARNESS THEM

No CIO seeking career success and corporate profitability can ever underestimate the importance of keeping customers happy. But keeping customers happy, believes Richard Barrett, author, consultant and founder of Corptools.com, depends on attracting and retaining the best people. For Barrett, finding effective techniques that release new levels of employee creativity and productivity is one of the biggest issues facing executives today. And the way to address these issues, he says, is by building cultural capital.

But what is cultural capital? "It's the intangible assets of a corporation," says Barrett. "These are usually not reported on the balance sheet. Cultural capital includes employee creativity, productivity, knowledge or intellectual capital, experience, and emotional intelligence as well as customer relationships and the goodwill of society. Companies with high cultural capital focus their energies on employee fulfillment, customer satisfaction, and social responsibility. Their leaders are vision-guided and values-driven.

They inspire and motivate people. Companies with a high degree of cultural capital are usually more successful over longer periods of time than companies that are low on cultural capital."

Barrett views the role CIOs should play in measuring and managing cultural capital as twofold. "First, CIOs need to show the leadership team how metrics can be used to measure cultural capital and, secondly, CIOs must provide regular updates on what is happening to cultural capital in the organization," he says.

Barrett sees cultural capital as "the new frontier of competitive advantage. If you want to attract and retain the best people," he says, "then you need a great corporate culture that provides physical, emotional, mental, and spiritual fulfillment to everyone in the organization. By spiritual, I mean a sense of meaning, making a difference, and service."

CIOs need to "get an appreciation for the possibility of measuring the intangibles — particularly cultural capital. The intangibles represent such an important part of what makes a company successful," he stresses.

SOURCE BRAINPOWER WHEREVER YOU FIND IT

Jeffrey E. Garten, Dean of the Yale School of Management, also sees a human equation at the foundation of corporate strategy.

Based upon his recent book, *World View: Global Strategies for the New*

Economy, and interviews conducted with 40 of the world's top CEOs for his forthcoming book, *The Mind of the CEO* (January 2001), Garten says that the "biggest challenge will be to maximize the advantages of global reach." And to do that, companies must develop a dramatic new business model.

"In the early 21st century this will mean sourcing brain power rather than low-cost manufacturing sites," he explains. "As Jack Welch says, 'you have to get every mind in the game.' The winning global companies will find talent where others cannot — in rural China, in northeast Brazil, in small towns in Eastern Europe. This is a new game for most corporations — whether they are American, European, or Japanese — because most have relied on their own intellectual pool to fuel growth and profits. That won't work in the global economy anymore."

UNDERSTAND THE NEW ECONOMY CUSTOMER

Communicating with and anticipating the needs and demands of an increasingly complex workplace — as well as increasingly sophisticated on- and off-line customers — must be the focus of a CIO's attention, according to Sandy Goldstein, Senior Vice President and CIO of Airgas, Inc.

Goldstein further believes that very few organizations will be insulated from the change e-commerce demands. "E-commerce is altering the relationships between customers and vendors," he says. "Understanding

your customer needs and being able to respond on a 24x7 basis is now a business imperative. Competitive pricing and quality products and services are only the sub-plot," he says.

Not surprisingly, Goldstein also sees a larger role for CIOs. "CIO skills need to expand to meet these growing demands," he says. "In the past, keeping technology running and meeting internal customers' needs were paramount. Today external customers and solutions to run the business are key."

But how can an organization (and its CIO) decide about aligning IT with the business, versus aligning IT with customer needs, versus IT driving business strategies for the new on-line economy?

"It's not about deciding," Goldstein asserts. "Your customers have already decided. The new CIO must align IT with the business, meet customers' needs, and create new strategies for working in the online economy. The only decisions are under what governance this function should operate and how fast you can get there."

And what can CIOs do to communicate within their organizations so that IT can understand and address customer needs and demands?

"Many novel approaches exist," he points out. "My business, for example, has successfully utilized distributed work teams, where IT lives with

the customer. We also employ customer-driven management and, in all cases, cooperative project teams. We take advantage of tools such as voice and video conferencing, intranets, extranets, chat rooms, bulletin

"My research shows that CIOs are being asked to substantially increase their participation in shaping the strategic direction of the company, to accept more responsibility for initiating business change projects, and to become more aggressive in introducing new technology into the organization."

Michael Earl, London Business School



boards, mobile offices, flex time, and the like. In addition, Airgas has a program called 'externships' where we send all IT professionals to customers' locations from one to four weeks a year to learn more about our customers' businesses."

Goldstein also offers a number of novel ways for CIOs to communicate with customers to make sure the organization is keeping them happy. "We use a feedback process and surveys, as well as letting our customers complete project performance reviews for our associates," he says. "Financial incentives are tied to the reviews," he adds.

INTEGRATE OLD AND NEW CULTURES

Moreover, as an organization's e-commerce capabilities evolve, adds David Aldridge, Executive Vice President and CIO of the Home Shopping Network (HSN), CIOs can expect to deal with several important cultural and business changes. "The integration of e-commerce — both technical staff and their initiatives — with legacy staff activities has definitely impacted our internal culture," says Aldridge.

The major technical challenges of e-commerce implementations are the integration of the front-end e-commerce engine with the back-end legacy systems that support core business, he believes.

But, he notes, "there are significant staffing issues that CIOs need to address as their organizations adapt to New Economy opportunities, including the need for hiring, retaining and/or retraining staff with the appropriate skills to deliver e-commerce solutions quickly. And with the current staffing shortage approaching one million professionals, there are challenges for us all."

What advice does Aldridge offer CIOs as they guide their organizations into e-commerce competition?

"You must create a separate IT group

welcome

It's all about Greater Expectations

to focus on the demands of e-commerce," he says. "But don't underestimate the complexity of integrating an e-commerce front-end with legacy systems. Getting there with something reliable and scalable is more important than getting there quickly. Of course, you still have to get there quickly!"

Yet as important as e-commerce is, Aldridge offers a warning: "While the present focus is on e-commerce, which presents a new opportunity to link with customers and suppliers, many companies will continue to drive earnings from legacy applications."

Yale's Garten also cautions about current conventional wisdom concerning Internet competition and the new economy. His views are shaped by his experiences as Undersecretary of Commerce helping US firms break into foreign markets, as well as time spent managing Lehman Brothers' Asia operation.

"The most listened-to consultants and academics have been saying traditional global companies will be taken to the cleaners by the new Internet firms," he says. "Guess what? They are wrong. The empire is striking back. Most global CEOs, while slow to start, are embracing the Internet with tremendous force. Yes, it's a tough change, particularly culturally, but it will happen. The empire will — indeed, it already is — striking back."

FOSTER REALISTIC EXPECTATIONS

CIOs must learn to communicate effectively to the wider corporate community. Dr. Jim Wetherbe, Stevenson Professor of IT, Texas Tech University, warns that unless CIOs do this, IT will

"The winning global companies will find talent where others cannot - in rural China, in northeast Brazil, in small towns in Eastern Europe. In the early 21st century this will mean sourcing brain power rather than low-cost manufacturing sites."

Jeffrey E. Garten, Dean, Yale School of Management



lose control over user expectations. As a veteran of the IT trenches himself, Wetherbe has first-hand experience of customers' disappointments when differences exist between what's received and what was anticipated.

"Employees and executives have unrealistic expectations of their information systems and tools, such as what they're going to get, when they're going to get it, and how much it's going to cost," says Wetherbe.

Such unrealistic expectations develop in a variety of ways, including

wishful thinking, miscommunication, creeping expectations, and a curious phenomenon he calls 'the void.'

For example, IT delivers an accounting application designed to improve cash flow. The applications meet all of the agreed-on specifications, but suddenly your user asks, 'So, when do we cut staff?' Where did that expectation come from? Well, in this case the user believed it was the purpose of all IT systems to reduce headcount — this was never agreed to by IT, but it was assumed to be part of the process by the user."

"There are very practical, straightforward, streetwise ways that every CIO should know to minimize this vexing problem," he says. "Part of the reason users have unreasonable expectations is because they don't really understand how difficult IT tasks are," he notes. "CIOs need to learn how to be proactive in communicating; they need to tell their story to the rest of the organization. Many IT professionals confuse hard work with recognition — it's not the same thing."

There's little confusion about where the CIO's role is heading, and the need for today's practitioners to influence corporate strategy with a blend of technical knowledge, business acumen, and leadership ability. It is, after all, about greater expectations.

SUNDAY, OCTOBER 15

11:30 am - 3:30 pm **The Leaderboard Classic Golf Tournament**
Hosted by Lockheed Martin Corporation

3:30 pm - 5:30 pm **Conference Registration**

6:30 pm - 8 pm **Welcome Reception and Registration**

8 pm - midnight **Hospitalities/Networking**

MONDAY, OCTOBER 16

7:30 am - 8:30 am **Breakfast**

8:30 am - 8:45 am **Welcome, Opening Remarks and KnowPulseSM Poll**
Gary Beach



*Group Publisher
CXO Media, Inc.*

The KnowPulse "Knowledge" poll, an ongoing opinion poll conducted by CIO magazine, captures IT and business executives' perspectives on current topics in the news. Past polls have been covered in CIO magazine, as well as other prestigious media organizations, including CNN, Newsweek, The Wall Street Journal, and U.S. News & World Report.

8:45 am - 9:30 am **Managing the Expectation Gap**
Dr. Jim Wetherbe



*Stevenson Professor of IT, Director of IB2 Research
Texas Tech University*

Conference Moderator

People become disappointed when differences exist between what they receive and what they expect. As a professional group within an organization, IS teams in general work longer days and harder per hour, and give up more weekends than any other group. Yet, despite their commitment, they often do not receive the recognition they deserve for their personal sacrifices. The problem is that what is delivered often does not meet expectations. Such gaps usually surface when organizations dynamically change their expectations of IT without the CIO's knowledge or input, or when users acquire unrealistic expectations about its benefits. Wetherbe explores the phenomena of expectation gaps, and suggests approaches CIOs can use to effectively manage them.

9:30 am - 10:30 am **The Train Needs To Fly: Technology Alignment in a Rapidly Evolving Business Environment**
David Aldridge



*Executive Vice President and CIO
The Home Shopping Network*

The Home Shopping Network (HSN) pioneered the electronic retailing industry in 1977. From a rather simple business model, HSN has evolved into an electronic retailing powerhouse with live programming 24 hours a day, 364 days each year, reaching more than 70 million US households through broadcast, cable, satellite and the Internet. In 1999, the company generated \$1.2 billion in sales, received more than 68 million sales and customer service calls, shipped more than 34 million packages and currently services a growing customer base of more than 5 million. Dave Aldridge describes his role as architect in aligning IT with HSN's transformation to a new commerce business model, and outlines specific challenges for CIOs charting an organization's strategic future.

10:30 am - 11:00 am **Coffee Break**

11:00 am - 12:30 pm **The New CIO**
Michael Earl



*Professor of Information Management
London Business School*

Based on a global survey of nearly 100 CIOs, Michael Earl has plotted substantial role changes for CIOs in recent years, and has identified even greater transformations to meet the challenges of the new economy. Earl describes these changes, analyzes the skills and experience required of the new CIO, and discusses executive time allocation. He suggests that the job of CIO as we know it may become too large and demanding for just one person to handle. He illustrates his presentation with data and examples gathered in the summer of 2000 from the US and Europe.

agenda

MONDAY, OCTOBER 16 (con't)

12:30 pm - 1:30 pm **Luncheon**

1:45 pm - 2:30 pm **Business Briefings: Brio, Cable & Wireless, Changepoint, Chordiant**

2:35 pm - 3:20 pm **Business Briefings: Citrix, E.piphany, EDS, Enterasys**

3:25 pm - 3:50 pm **Coffee Break**

3:55 pm - 4:40 pm **Business Briefings: Genuity, HP, IBM, IDC**

4:45 pm - 5:45 pm **Venture OnStage: What's Just Around the Corner?**

Chris Lindquist - Moderator

Technology Editor

CIO Magazine



Be among the first to see hot new technologies, products and services! We're challenging the chief executives of five companies to tell us — in under ten minutes each — why their newest technology or service should give us greater expectations. The five finalists represent companies that have been through at least one round of financing, and whose product has been marketed for less than a year. They've already withstood a winnowing process by a jury of CIO magazine executives ... but are they ready for you? You be the judge.

5:45 pm - 7 pm **Reception**

7 pm - midnight **Hospitalities/Networking**

TUESDAY, OCTOBER 17

7:30 am - 8:30 am **Breakfast**

8:30 am - 9:30 am

Enabling Visions: The CEO-CIO Relationship

John J. Brennan

Chairman and CEO
The Vanguard Group

Robert DiStefano

Managing Director of Information Technology
The Vanguard Group



Businesses have a hierarchy of IT needs characterized by increasing complexity and risk. Every IT task can be categorized as one of three types: 1) automating the business; 2) expanding the business; or 3) reinventing the business. In each of these scenarios, the most difficult technology and business questions typically revolve around what to do, not how to do it. Chairman and CEO John J. Brennan and Robert DiStefano, Managing Director of Information Technology, will team up in this presentation to discuss strategic decision-making and the CEO-CIO relationship at The Vanguard Group, the world's second-largest mutual fund company. Brennan will discuss his vision for technological innovation at Vanguard, and DiStefano will outline how IT works with business to carry out that vision.

9:30 am - 10:30 am

The Role of the CIO at eSpeed

Sandy Goldstein

Senior Vice President and CIO
Airgas, Inc.



E-commerce is driving the corporate agenda, and changing the influence of the CIO in strategic planning, operations, customer relations and in the board room. Goldstein addresses the transformation of IS strategies to business and operating strategies; IS budgets to capital raising/P&L administration; human resources management to joint ventures/partnerships creation; and corporate navigation to corporate governance. He compares aligning information services with the business and customers; and information services driving business strategies for the new on-line economy. Goldstein and two Airgas customers offer strategies to communicate with and anticipate the needs/demands of increasingly complex workplaces and sophisticated on- and off-line customers.

10:30 am - 11 am **Coffee Break**

11 am - 11:50 am **Business Briefings: Information Builders, Intel, Intentia, Intira, Iomega**

Noon - 1 pm **Luncheon**

TUESDAY, OCTOBER 17 (con't)

1 pm - 2 pm



Thoughtful Alignment and Local Entrepreneurship: A Business and IT Strategy

Harriet Edelman

Senior Vice President and CIO
Avon Products, Inc.

Avon, in its third century, operates in 135 countries through a direct sales force of 3,000,000. The business is undergoing a transition from a single to multi-channel world and overall transformation of a traditional business model. Avon is not post-ERP, so the challenge is to improve the fundamentals while quickly delivering customer-facing applications. Edelman outlines how to take a business strategy that is stated at a high level and drive the IT strategy to better align with it. Avon IT has a legacy of significant decentralization, so the plan going forward must be executed with greater alignment and coordination — while preserving local entrepreneurship.

2 pm - 2:50 pm

Business Briefings: Kyocera Mita, Legato, Lockheed, Lucent, NetScout

3 pm - 3:50 pm

Business Briefings: Powerware, Prosight, Symantec, Xerox

3:50 pm - 4:15 pm

Coffee Break

4:15 pm - 5:45 pm



Cultural Capital and the New Frontier of Competitive Advantage: Tools for Measuring Your Culture and Mapping Your Values

Richard Barrett

Author, *Liberating the Corporate Soul: Building a Visionary Organization*

According to Barrett, the three biggest issues in business today are how to become more profitable; how to attract and keep the best people; and how to release new levels of employee creativity and productivity. All can be addressed by building cultural capital. Employees remain at organizations whose values and vision are in alignment with their own, whose leaders empower rather than exploit, and where they will feel a sense of community and ownership. A values-based culture that focuses on employee fulfillment is the number one attribute for success. To create such a culture, you need to manage and measure it.

5:45 pm - 6:45 pm

Reception with Richard Barrett

7 pm - midnight

Hospitalities/Networking

WEDNESDAY, OCTOBER 18

7:30 am - 8:15 am

Breakfast

8:15 am - 8:30 am



KnowPulse Poll Results

Abbie Lundberg

Editor in Chief
CIO Magazine

Lundberg will present the results of Monday morning's poll.

8:30 am - 10:30 am

Globalization and Corporate Strategy: What Every CIO Should Know

Jeffrey Garten

Dean and William S. Beinecke Professor in the Practice of International Trade and Finance
Yale School of Management
Author, *World View: Global Strategies for the New Economy*



Conducting business in the global arena entails planning and executing corporate strategies in revolutionary ways. Corporate leaders need to rethink every aspect of the company, the marketplace, and the competition. Using research from his recent book, and interviews with 40 of the world's top CEOs for his forthcoming book, Garten describes some of the key themes that have emerged. He also provides his personal evaluation of whether these strategies are up to the formidable challenges he sees ahead.

10:30 am - 11 am

Coffee Break

11 am - 11:30 am

Question & Answer Session with Jeffrey Garten

11:30 am - 11:45 am

Closing Remarks
Dr. Jim Wetherbe

MONDAY, OCTOBER 16

1:45 pm - 2:30 pm

B2B Analytics: Transforming the Landscape of eBusiness



Katherine Glassey
CTO
Brio
Technology, Inc.

Companies require B2B analytics to measure and drive improved business performance. These analytics must be simple and intuitive, serving the needs of the individuals throughout an organization, addressing all relevant information sources.

Organizations must manage e-business effectively, responding to opportunities quickly and staying ahead of competitors. This requires business intelligence integrating business with traditional channels and partners, internal and external data, and strategic information with tactical data.

E-business analytics empower organizations to create and deliver shared, actionable information wherever it is required along the e-business value chain. Insight into your e-business using these analytics will separate the winners from the losers in the new e-economy.

Creating Partnerships: Innovative Approaches to Delivering E-Speed Customer Solutions



Robert Flood
CTO
Cable &
Wireless, Inc.

IP technology is driving e-business and changing the way we do business — and the way we support performance-driven customer strategies. Do shifting technologies require thinking about partnerships as an effective way to provide innovative approaches to

customer e-solutions? Flood explores what customers think about the need to deliver solutions globally as they look ahead to growing their business. Participants will look at what it takes to develop an effective partnership that's a win-win for all parties. He also describes some of the attributes of companies that make the best partners. Flood highlights a partnership case study and explains why was the partnership initiated, and the benefits and difficulties.

A Success Story: How Guardian Insurance Manages Their IT Like a Business

Joe Connell
Vice President, Information
Technology
Guardian Life Insurance
Company of America

Courtesy of Changepoint

Connell discusses Guardian's ongoing transformation of its IT department and its culture: how they are meeting the increasing and always-changing demand for advanced high-quality IT services with a limited number of dedicated resources; making client satisfaction a top priority for the IT department; providing IT business leadership in the organization; establishing IT metrics that enable for strategic planning, plus show the benefits of IT work throughout the business; and "professionalizing" IT — attracting and retaining high performers in IT, plus enhancing their career opportunities.

2:35 pm - 3:20 pm

Corporate Portals: Transforming the Desktop into a Doorway



David Weiss
Vice President
Marketing
Citrix Systems, Inc.

A corporation's voracious appetite for information — delivered quickly, efficiently and universally — is a given. The challenge facing CIOs is how best to feed this hunger. Traditional desktops, fat with installed applications and tools, are morphing into Web-based "doorways" to information stored elsewhere — in data warehouses, on company and ASP servers, and on the Web. Corporate portals promise greater productivity, ease of use and cost savings. But their success hinges on accessing all information, including existing applications, via a Web browser. A key enabler of the portal trend is new technology providing instant "Webification" of server-based applications. By accelerating Web enablement of existing solutions, this technology flings open the door to a new era in information access.

Capitalizing on The Digital Economy

Courtesy of EDS

CIOs are reinventing their enterprises. They're striving to meet the demands of continuous change, cope with the reality of unstable marketplaces, and respond to unpredictable sources of competition. How will you deliver creative strategies and superior expertise to meet these demands? How will your prospects become new customers? In this session, EDS will show you ways to turn these challenges into successes. By capitalizing on the digital economy, your company will be prepared to win against its toughest opponents.

3:55 pm - 4:40 pm

Successful IT Planning

Courtesy of IDC

Once companies set their corporate business directions, they begin to form a plan for information technology to support their goals. Done well, IT planning becomes a tapestry of mission statements, business objectives, and strategies. Increasingly, CIOs are faced with the challenge of creating IT plans that achieve business goals through technology innovation. To help CIOs with this challenge, IDC has created an IT planning approach that CIOs can customize and apply to create a business-focused strategic IT plan. Learn about this approach, along with an integral proven planning model for ranking and selecting the right IT strategies for investment. IDC's technology planning expert will also discuss how he has applied the approach to help other CIOs create successful IT plans.

TUESDAY, OCTOBER 17

11:00 am - 11:50 am

U. S. Bank and Information Builders: Building an Architecture for E-Business



Chris Clemens
Vice President
Business
Architecture
**U.S. Bank Electronic
Payment Systems**

Courtesy of Information Builders, Inc.

As the world's largest issuer of procurement cards, U.S. Bank is a critical enabler to e-commerce. Clemens explores how U.S. Bank is teaming with Information Builders to build an Internet-based commercial payment system to meet the demand for sophisticat-

ed payment transactions for B2B e-commerce. Extending U. S. Bank's card management system to partners, this system will ultimately allow customers to analyze transactions as part of B2C and CRM initiatives. Information Builders' end-to-end solutions for business intelligence and enterprise integration enable customers like U.S. Bank to quickly and cost-effectively meet market challenges.

Building a Third Generation e-Business Data Center



Christopher S. Thomas
Chief eMarketing
Strategist
IA Solutions
Channels Group
Intel Corporation

The evolution of Internet Business is moving at a stunning pace. Is your company ready for the third generation of Internet Business? E-Business today is shifting the computing epicenter from the fortress of the traditional data center to the rough-and-tumble world of customer-facing systems and front-end web servers. And in this customer-centric world of the Third Generation, companies are creating not just supply chain linkages but entire lattices with automated, bi-directional rules-based links between numerous vendor systems and customer systems. So how can you build your company's business Internet systems and solutions to handle this new e-Business environment? Thomas examines the new technologies that will help you succeed in this new era.

The Balancing Act: E-Business & the Information Backbone



Ed Koepfler
President
Intentia Americas

Ice cream, furniture, personnel recruitment, and dairy businesses. What do they have in common? They figured out how to be profitable with e-business. What's their secret? They learned to leverage best practices and effective management approaches with the right information technology backbone to ensure success. Koepfler explores the strategies, implementation and payback of completing an enterprise infrastructure for the greatest impact on business and e-business.

The Future of Technology



Dana R. (Rick) Richardson
President
Richardson Media & Technologies

Courtesy of Iomega Corporation

Rick Richardson provides participants with his vision of both our near and longer-term future as it relates to technologies important to the CIO and IT professional. Topics will include a review of last year's predictions, current trends in hardware, software and communications, and emerging technologies that will help bring those trends to reality. Richardson also discusses the future of removable storage and data transfer. Finally, he goes on the line with his forecasts of our technological future. Richardson will bring along some of the newest technologies to use in delivering his presentation.

TUESDAY, OCTOBER 17

2:00 pm - 2:50 pm

Kyocera Mita



Bob Sostilio
*Director, Converging
Digital Peripherals
CAP Ventures*

Courtesy of Kyocera Mita America, Inc.

Why are digital based copiers, facsimile transceivers and printers establishing higher penetration rates into the office space on a daily basis? Are these digital platforms restricted to specific work environments with specific functionality? Are they providing integration of functionality and creating higher workgroup productivity across the enterprise?

Come hear an industry expert's view on the trends of converging functionality and which manufacturers and resellers are delivering seamless integration of digital functionality.

Sending information to and from internal and external clients are challenges companies face today. Discover how clients view, store, edit and distribute data without being retrained on new technology or print drivers. Decide if office equipment manufacturers have developed true-life plug and play peripherals with standard user interfaces and common print drivers. You'll be sure to walk away with new insight, ideas and viewpoints on communicating more efficiently with internal and external clients.

**Information Continuance:
Information Wherever You Need It,
Whenever You Need It, On
Whatever Platform Is Required**

George Symons

*Vice President, Product Development
Legato Systems, Inc.*

It doesn't matter how complex your computing environment is, or how constrained you are by time, budget, and staffing. If you're an IT decision-maker today, you live and die by one metric: the availability of mission-critical information wherever it's needed, whenever it's needed, on whatever platform is required.

This is called "information continuance," and it is an essential goal for any enterprise in an e-commerce, multi-platform world. Achieving information continuance demands a range of solutions that tackle three fundamental tasks: protecting information; moving information; and managing information.

Symons discusses how businesses must protect, move, and manage data across the enterprise if they are going to succeed in leveraging their information assets and adding value for their customers.

Getting the Risk Out of E-Business

Courtesy of Lockheed Martin

The Internet is profoundly changing the way business is conducted. The "hidden" e-Business imperative is that Internet transactions can't be allowed to put your company, vendors, employees, customers and others at risk. What's needed is rock-solid planning and bulletproof IT infrastructure to maximize Net profit and minimize risk. Industry experts will talk about balancing risk and reward and lessons in building an e-Business-ready infrastructure. Participants are encouraged to take a broad view of the transformation of business into e-Business. Business models and processes, applications, and technology infrastructure

are all deeply affected by this transformation. Its impact and the associated risks need to be clearly understood and managed in order to make the most of the opportunity. This briefing will be followed by a roundtable discussion with the experts.

**Keys to the Virtual eBusiness
Enterprise: Communication-
enabled Portals Delivered by CIOs
as Enterprise Service Providers**



Martin F. Parker
*Vice President
Strategy and
Portfolio Planning
AVAYA
Communication*

The virtual enterprise is the operating paradigm for eBusiness, with each enterprise creating its best core value proposition through networked combinations of suppliers, partners and employees and then presenting these capabilities to customers through global networks. One key to success is powerful, consistent communication links throughout the virtual enterprise.

Communication-enabled Portals are the optimum vehicles for these linkages, facilitating long-term, high-value business relationships through both human and system interactions. Another key is the orchestration of eBusiness service delivery to the virtual enterprise, where CIOs and their teams may emerge as "Enterprise Service Providers," delivering a modular blend of both internally-produced and externally-sourced eBusiness services. Parker discusses opportunities for engagement and exploitation in these two key areas of eBusiness.

3:00 pm - 3:50 pm

CIO As Strategist: How ITM placed A CIO at the Strategy Table



Walter Weir
CIO
University of
Nebraska



John Cimral
CEO
ProSight, Inc.

The challenge of managing and meeting the expectations

of all IT stakeholders is a constant battle for CIOs. Go from the private to the public sector, and these challenges are compounded. Imagine the University of Nebraska, a \$1.3 billion public institution, balancing the needs of faculty, administration, students, academic leadership AND the public. Examine how they communicate the carefully scrutinized consumption of tax dollars and demonstrate the value returned from almost \$100 million spent on IT each year. Walter Weir explains how he put an IT Management (ITM) system in place to communicate in a common business language across the institution, and ensure the alignment of IT spending with the University's objectives. More importantly, this system allows Weir to position IT as the driver of overall organizational strategy, rather than the other way around.

Network Security: Past and Present



Cress Carter
Vice President, North
America Enterprise
Sales and Marketing
**Symantec
Corporation**

In the 1960's and 1970's, network security was a matter of "gates, guns, and guards," where security could be maintained by simply

preventing intruders from physically breaking into a facility.

In the 1980's and early 1990's, the "find and fix" approach took hold as technologies such as client/server computing and the Internet fueled new, more complex security challenges. As one company after another fell victim to a variety of security threats, commercial software providers responded with products targeted at individual areas of concern.

Today, IT professionals are beginning to realize that maintaining security requires more than simply locking one door at a time. Instead, they are challenged to minimize security risks at all points across the enterprise — a daunting task considering the labyrinth of applications and hardware involved.

Enterprise Success: A Case Study

Courtesy of Xerox Corporation

In partnership with one of their leading customers, Xerox showcases innovative industry-focused solutions and services that help CIOs improve key processes and resolve today's business problems. By combining global capabilities and world-class partners from information technology, document management and knowledge sharing, the presenter offers solutions to help customers become more efficient while anticipating and responding to future market changes and opportunities.

Business briefings will also be presented by:

Chordiant Software, Inc.
Enterasys
E.piphany, Inc.
Genuity
Hewlett-Packard Company
IBM Corporation
Intira Corporation
NetScout Systems, Inc.
Powerware

Venture OnStage



NEW! Venture OnStage: Are These Entrepreneurs Ready for Prime Time?

For this conference, we've added a new feature that will generate more excitement — and probably plenty of heated discussion: Venture OnStage!

Our esteemed jury of *CIO* magazine executives has weighed the merits of submissions from companies who think they have hit upon "the next blockbuster idea." In order to qualify, these companies have been through at least one round of financing, and have marketed their product, service or technology for less than a year.

We've winnowed the hopefuls down to five finalists, and we're challenging their chief executives to convince us — in under ten minutes each — why their newest technology or service should indeed give us greater expectations. You get the chance to pepper them with questions, and decide whether or not they are ready for prime time.



AVAYA Communication, formerly the Enterprise Networks Group of Lucent Technologies, is a leading provider of communications and networking technology for businesses, with a customer base that includes 90 percent of the Fortune 500. We provide a full array of business communications solutions — including service and support functions — for voice and data networks, customer relationship management and call centers, and messaging. AVAYA Communication will be the worldwide leader in messaging and call centers and the U.S. leader in voice communications systems for both large and small businesses.



Brio Technology, Inc. is the only business intelligence software provider to offer a complete, integrated analytic infrastructure that addresses the decision-making needs of today's e-business/business to business world. The Brio ONE solution — including Brio Enterprise, Brio.Report, Brio.Portal, and Brio.Applications — enables organizations to build and deliver business intelligence, enterprise reporting, and analytic applications to users in Intranet, extranet, and hosted application environments, all with unmatched ease of experience and scalability.

Contact Brio at 1-800-879-BRIO, or at www.brio.com.



CABLE & WIRELESS

With customers in 70 countries, **Cable & Wireless** is a major global telecommunications business offering a range of services spanning broadband data and Internet, fixed and mobile voice, as well as interactive entertainment and information.

Cable & Wireless' priority for expansion is the fast growing market of data and IP (Internet Protocol) services for business customers. It is making major investments in developing advanced networks and services in the United States, Europe and the Asia Pacific region to build the world's leading global IP infrastructure. With the capacity of this advanced infrastructure and its presence in key business markets, Cable & Wireless holds a unique position in terms of global coverage and services to business customers.



Changepoint Corporation

IT executives are making intelligent and profitable informed strategic business decisions — all while reducing their administrative and resource costs. Changepoint for Enterprise IT is a fully integrated corporate IT management software solution that empowers IT executives to centrally deploy, manage and measure time, costs, skills and productivity of both

internal resources and external contractors. Prepare your corporate IT initiatives with an end-to-end view of the entire IT services supply chain. Visit us at www.changepoint.com.



Chordiant Software builds customer relationship management applications tailored for business-to-consumer companies, serving traditional and e-business environments, with a single view of the consumer.

Unlike Web-only and customer relationship point solutions, Chordiant's flagship product, Chordiant CCS — Customer Communications Solution — embraces new customer communications methods while leveraging existing ones.

Chordiant unifies Web, branch and call centers through a single customer model that integrates all services, offerings and business goals. As a result, Chordiant allows enterprises to retain customers and grow revenue by enabling more sophisticated relationships.



Citrix Systems, Inc. is a global leader in application server software and services that offer "Digital Independence™" — the ability to run any application on any device over any connection, wireless to Web.

Citrix's solutions enable organizations to reach more users, with more applications, in more locations — and achieve this with greater speed and predictability, and lower costs.

Founded in 1989, Citrix is one of the world's fastest-growing software companies, with more than 100,000 customers worldwide, including every one of the FORTUNE 100 firms. Its products, including MetaFrame™ software and Independent Computing Architecture (ICA), have been widely adopted by the corporate mainstream to achieve key business goals.



EDS is a professional services firm that applies consulting, information and technology in innovative ways to enable clients to improve their overall performance.

Through an "end-to-end" portfolio of services that includes all aspects of electronic business, EDS is the provider of choice for thousands of leading businesses and governments around the globe. EDS' business is making clients more successful. The company works with its clients to extend their enterprises and catapult them ahead of the competition. It provides thought leadership and creates measurable value by unleashing the full potential of information and technology.

For more information about EDS, please visit www.eds.com.

ENTERASYS NETWORKS™

Enterasys Networks provides powerful and intelligent infrastructure solutions for today's Global 2000 enterprise customers. By optimizing its solutions to support converged voice, video and data resources, Enterasys builds a solid end-to-end foundation for the seamless deployment of emerging e-business applications.

Flexible and highly manageable, Enterasys solutions scale to meet changing customer demands while protecting investments and lowering cost of ownership. With industry-proven technology, strategic partnerships and 24 x 7 worldwide support, Enterasys delivers maximum competitive advantage through the communications infrastructure.

For more information, visit us on the Web at www.enterasys.com.



E.piphany is the leading provider of intelligent customer interaction software for the customer economy. Delivering an integrated solution combining insight and action software products, E.piphany's Web-based analytic and operational CRM portfolio provides global business with a single, enterprise-wide view of each customer, to better understand and proactively respond in real-time to customer and market opportunities. Through feature-rich E.piphany products, including the E.4 System,

all inbound and outbound sales, service and marketing interactions are unified through multi-channel customer touchpoints and rich analytics. E.piphany serves the industry-leading enterprises in e-commerce, financial services, communications, consumer-packaged goods and technology.

GENUITY

Genuity Inc. is a leading facilities-based provider of high quality, managed Internet infrastructure services to enterprises and service providers. Genuity offers a comprehensive suite of managed Internet infrastructure services, including: Internet access through dial-up, dedicated and digital subscriber lines; Web hosting and content delivery; and value-added e-business services such as virtual private networks (VPNs), security services and voice-over-Internet Protocol. With extensive IP experience, the company integrates its suite of services into corporate networks and delivers high-performance, secure and scalable infrastructure services for conducting business on the Internet. Visit Genuity at www.genuity.com.

hosts



Hewlett-Packard Company (HP) is a leading global provider of computing and imaging solutions and services for business and home. HP capitalizes on the opportunities of the Internet and the proliferation of electronic services. We are the second-largest computer supplier in the world, with 83,200 employees worldwide and revenue from continuing operations of \$42.4 billion in the 1999 fiscal year.

HP is extending its leadership in enterprise computing to the Internet marketplace, specifically in the areas of e-services and digital imaging. HP will enable the vision of e-services via partnerships and ventures of its own in the areas of apps-on-tap, which is pay-as-you-go software, and e-service portals.



IBM has introduced the world's most powerful Intel-based server, the 64-processor NUMA-Q E410, along with the industry's most affordable technology-leading two-way server, the Netfinity 3500 M20. These products represent the high-end and the low-end of the industry's most scalable Intel-based server line for e-business running Windows 2000 and Linux environments. Visit our Web site at www.ibm.com/servers/.



IDC is a leader in delivering reliable and insightful IT data, analysis, and opinions to enable organizations to successfully participate in the Internet economy. Founded in 1964, this worldwide company employs more than 650 industry analysts who cover a broad spectrum of technology and management areas. IT professionals and executives rely on IDC's research and advisory services for clarification, validation, and guidance in their tactical and strategic IT decision making.

Let IDC help you realize maximum value and ROI from the dollars you spend applying IT to business strategy.

Visit IDC's Web site at www.idc.com/itadvisor or call 1-800-343-4952 ext. 4773 for more information.



Information Builders helps organizations grow their businesses through the power of information. Its i-business software solutions combine data integration and business intelligence, giving people the ability to access and share real-time information over the Internet. Headquartered in New York City, Information Builders is one of the largest independently owned software companies in the world with more than 5,000 customer sites, including 92 of the top 100 corporations, currently using its technologies.



For over three decades, **Intel Corporation** has developed technology enabling the computer and Internet revolution that has changed the world. Intel is at the forefront as a primary building block supplier for the Internet economy. Today, companies incorporate Intel architecture-based solutions across their connected business and IT environments to create successful e-Business infrastructures: from Internet servers to data center systems, desktops to workstations, and laptops to network PCs and online services. For more information on Intel and its role in e-Business, visit us on the Web at www.intel.com/eBusiness.



Intentia International is one of the world's leading suppliers of Enterprise Applications to companies that manufacture products in discrete and process environments. Intentia is an ISO 9000 certified software developer and worldwide IBM development partner for the IBM AS/400. Our Enterprise Application, Movex, is designed to improve the underlying business processes within distribution and manufacturing companies, in the areas of logistics, production, distribution and finance. Available in 24 languages, Movex is implemented in more than 4,000 sites worldwide.

For more information, please call
1-800-SW-MOVEX or visit us at
www.intentia.com.



Intira Corporation is a provider of Netsourcing — the outsourcing of the complex IT and network infrastructure required to support mission-critical e-business applications. Intira Netsourcing Solutions incorporate highly skilled technical resources, highly automated operations, a suite of value-added services, and a seamlessly integrated world-class infrastructure — Enterprise-Class Data Centers and superior-quality broadband network — operationally controlled by state-of-the-art Service Management Centers. Intira's comprehensive Service Level Agreements ensure application availability up to 99.95 percent, while the OneSource-OneCall customer support program provides a single point of accountability.

Customers include Fortune 1000 organizations, dot.com companies, ASPs, and ISVs that depend on the availability of their mission-critical e-business applications. Visit Intira at www.intira.com, or call 888-326-3638.



Invensys Power Systems—secure power, ensures critical business uptime with its industry-leading UPS hardware, innovative software and global services for total power management solutions. Invensys Secure Power's comprehensive product offerings deliver high-level systems availability to a broad range of applications — from e-business to global networks, ISPs, industrial and communications equipment. Because when your systems aren't up and running, your business halts.

Invensys Secure Power is comprised of the leading brands, Powerware, Best Power and IPM. For more information, visit our Web site at www.invensys-power.com.



Iomega Corporation, a leader in smart, portable storage solutions, manufactures and markets the award-winning Zip®, Jaz® and Klik!® drives and disks and markets the ZipCD® CD-RW drives and discs that help mobile and desktop users in business, government and education to organize, manage, create, exchange and share their important information. Iomega Corporation can be reached at 800 MY-STUFF (800 697-8833), or on the Web at www.iomega.com.



Kyocera Mita America, Inc., is a leader in digital document imaging. As part of the \$7.5 billion Kyocera Corporation, KMA is known for developing economical, ecologically sound print engines, state of the art controllers and network tools plus years of innovation in copier technologies, paper handling and manufacturing experience. The product line includes network ready computer connectable digital printers, printer/copiers, color printer/copiers, multifunctional and wide format imaging solutions. For more information, visit www.kyoceramita.com.



Legato Systems, Inc., is a worldwide leader in the enterprise storage management software market. Helping companies leverage business-critical corporate data assets, Legato's products and services enable information continuance, a seamless approach to the movement, management and protection of data throughout an enterprise. Founded in 1988, Legato's storage management software products have become the recognized industry standard with the largest installed base representing over 60,000 customers.

hosts

**LOCKHEED MARTIN**

Integrated Business Solutions Company, headquartered in Orlando, FL, is the commercial IT services arm of the **Lockheed Martin Corporation**. IBS is an international IT services provider that partners with customers for IT outsourcing, e-business solutions, enterprise systems integration, and technology training solutions. Lockheed Martin is a global enterprise principally engaged in the research, design, development, manufacture and integration of advanced-technology systems, products and services. For more information about Integrated Business Solutions, visit our web site at www.ibs-lmco.com.

**NetScout.**

Because the network is the business.™

NetScout Systems, Inc.

(Nasdaq:NTCT) is a leading provider of network and application performance management solutions. NetScout's solutions ensure e-business applications stay up and running at optimum performance through real-time, system-wide visibility and actionable information for fault isolation.

NetScout's unique Application Flow Management (AFM) technology collects and presents the rich set

of application and Web traffic information via NetScout's application-aware instrumentation and reporting and analysis software. Further information is available at www.netscout.com.

**ProSight**

ProSight, the leader in IT Management (ITM), is equipping IT organizations with the first of its kind IT Management application, enabling CIOs to:

- **Align** IT spending with key business objectives
- **Communicate** across the enterprise in a common business language
- **Measure** IT effectiveness and efficiency through key performance indicators

With ProSight, IT organizations accelerate time to market, lower project failure rates, improve customer satisfaction and develop strategies that support key business objectives. Productivity is increased as IT management activities are automated, and the entire team has instant access to job critical information from a single source. Visit us at www.prosight.com.

SYMANTEC.

Symantec, a world leader in Internet security technology, provides a broad range of content and network security solutions to individuals and companies. The company is a leading provider of virus protection, risk management, Internet content and e-mail filtering, and mobile code detection technologies to enterprise customers. Headquartered in Cupertino, CA, Symantec has worldwide operations in more than 24 countries. For more information please visit www.symantec.com.

XEROX

Xerox Corporation is the leader in the worldwide document market, providing solutions that enhance customer productivity. Xerox' solutions and systems are designed to help offices around the world capture, share and use knowledge. The company has unparalleled expertise in the document space — both paper and electronic — and provides industry-specific, global document solutions, based on its hardware, software, network and consulting services.

Xerox is the only document services provider with a global sales, service and manufacturing capability. The \$19 billion company is headquartered in Stamford, CT. For more information, visit www.xerox.com.

Arizona Biltmore Resort & Spa



This Frank Lloyd Wright-inspired resort holds a direct link to the fabled architect. Wrapped in history, this world-renowned destination has been crowned "The Jewel of the Desert."

Guests may try a leisurely outdoor game of lawn chess or croquet, or challenge the club pro on one of the resort's seven tennis courts. Others may choose a different way to enjoy the surroundings...from a golf cart. A myriad of biking and hiking trails, or the state-of-the-art workout facilities, provides the ultimate in exercise or pamper yourself in the 22,000 sq. ft. European Spa.

Greater EXPECTATIONS

The CIO and Corporate Strategy

ENROLLMENT FORM

Please visit our Web site at www.cio.com/conferences or Call us at 800 366-0246. You may also Fax the completed form to 508 879-7720 or mail to: Executive Programs, CXO Media, Inc., D3620, Boston, MA 02241-3620.



October 15-18, 2000
Arizona Biltmore Resort & Spa
Phoenix, AZ

NAME

TITLE

COMPANY

ADDRESS

MAIL STOP

CITY

STATE

ZIP CODE

PHONE

FAX

E-MAIL

COMPANY WEB SITE ADDRESS

WHAT IS YOUR INDUSTRY?

WHAT ARE YOUR ORGANIZATION'S ANNUAL REVENUES OR ASSETS?

WHAT IS YOUR ANNUAL IT BUDGET?

YOUR NAME AS YOU WANT IT TO APPEAR ON YOUR BADGE

NAME OF COMPANION (IF PARTICIPATING IN COMPANION PROGRAM)

HOTEL ACCOMMODATIONS - We urge you to make your reservations early by calling the hotel at 602 955-6600 ext. 5400 and identifying yourself as part of the **CIO** conference to receive the conference rate. **CIO will make hotel reservations for government/military participants only.** Be sure to guarantee your room with a credit card, as all unreserved or unguaranteed rooms will be released on September 8, 2000. Hotel reservations, cancellations and charges are your responsibility. If a **CIO** conference Enrollment Form is not received within 48 hours of making your hotel reservation, your room will be released from the **CIO** room block.

ENROLLMENT FEES - All enrollment fees must be paid in advance of the meeting. Fee includes conference sessions, business briefings, Corporate Host displays, conference materials, scheduled meals, receptions and entertainment. Transportation, hotel and recreation are your responsibility. **Please note that submission of this enrollment form to CIO obligates the attendee/sender for the enrollment fee.**

CANCELLATION - ALL CANCELLATIONS OR SUBSTITUTIONS MUST BE MADE IN WRITING. You may cancel your conference or companion enrollment up to September 15, 2000 without penalty. A \$250 administration fee will be imposed for cancellations received between September 16 - September 29, 2000. **No refund or credit will be given for cancellations after September 29, 2000 or for no shows.** You may send a substitute in your place. **CIO** reserves the right to decline enrollment to any registrant.

If this is your first CIO conference, your business card is required in order to process registration.

CHECK ALL THAT APPLY:

Enrollment Fees:

- ☐ **IS PRACTITIONER/EXECUTIVE = \$2,480**
This fee applies if you are a CIO, IS executive or hold another executive position other than those listed below.
- ☐ **GOVERNMENT/MILITARY = \$2,745**
This fee includes your hotel for three nights. Do not make your hotel reservations, **CIO** will make them for you.
- ☐ **SALES/MARKETING/CONSULTING = \$10,000**
This fee applies if you hold a sales, marketing, new business development or consulting position, including executive management of IT vendor and consulting companies. This fee is payable by company check only. **CIO** will make the final determination of this category.
- ☐ **COMPANION PROGRAM = \$325**
Companions must be enrolled in this program to attend any conference-related functions. Includes all scheduled meals, receptions, entertainment, companion breakfast, a stretch and tone class, and planned companion activities. Conference session attendance is not included.

PAYMENT:

TS2

- ☐ Check enclosed
- ☐ P.O.# _____
(A complete Purchase Order must be submitted within 10 days)
- ☐ AMEX ☐ Visa ☐ MC Exp. _____
Credit Card # _____
Signature _____
- ☐ I am not staying at the Arizona Biltmore Resort & Spa.
Name of alternate hotel _____

To enroll, CALL 800 366-0246, visit our WEB SITE at www.cio.com/conferences or FAX us at 508 879-7720.

Greater EXPECTATIONS

THE CIO AND CORPORATE STRATEGY

By straddling the role of IT and business visionary, in-house architect and corporate pioneer, the CIOs influence in an enterprise's success has never been more profound. To attain the deepest impact in shaping their organization's future, CIOs must be broad-based, multifarious enterprise leaders capable of envisioning, promoting, and driving IT and business strategy.

TO ENROLL:

- Visit our Web site at www.cio.com/conferences
- Call our conference hotline at 800 366-0246

October 15-18, 2000

Arizona Biltmore Resort & Spa ■ Phoenix, Arizona

KEYNOTE PRESENTERS



Jeffrey Garten
Dean and Professor
International Trade and Finance
Yale School of Management



Michael Earl
Professor
Information Management
Director
Center for Information Management
London Business School



Richard Barrett
Author
Liberating the Corporate Soul: Building a Visionary Organization

CONFERENCE MODERATOR

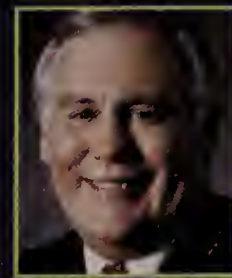


Dr. Jim Wetherbe
Stevenson Professor of IT
Texas Tech University
Professor of MIS
University of Minnesota

FEATURED PRESENTERS



Sandy Goldstein
Senior Vice President and CIO
Airgas, Inc.



David Aldridge
Executive Vice President and CIO
The Home Shopping Network

amicable split

BY SUSANNAH PATTON

Companies are dividing IS staffs to better compete in the Internet race. Their Web teams may be cool, but they better stay connected to their legacy pals.

Climb to the second floor of

Staples' spacious headquarters in Framingham, Mass., and you encounter two identical doors. Choose the one on the right, and you enter a traditional IS department with symmetrical gray cubicles, programmers and systems analysts working quietly at their desks or strolling intently down hallways. The tapping of keyboards interrupts a hum from the fluorescent lighting.

Open the door on the left, and a jolt of laughter and activity nearly knocks you over: Twentysomething employees in black T-shirts and jeans lounge at a coffee bar, while others,

Reader ROI

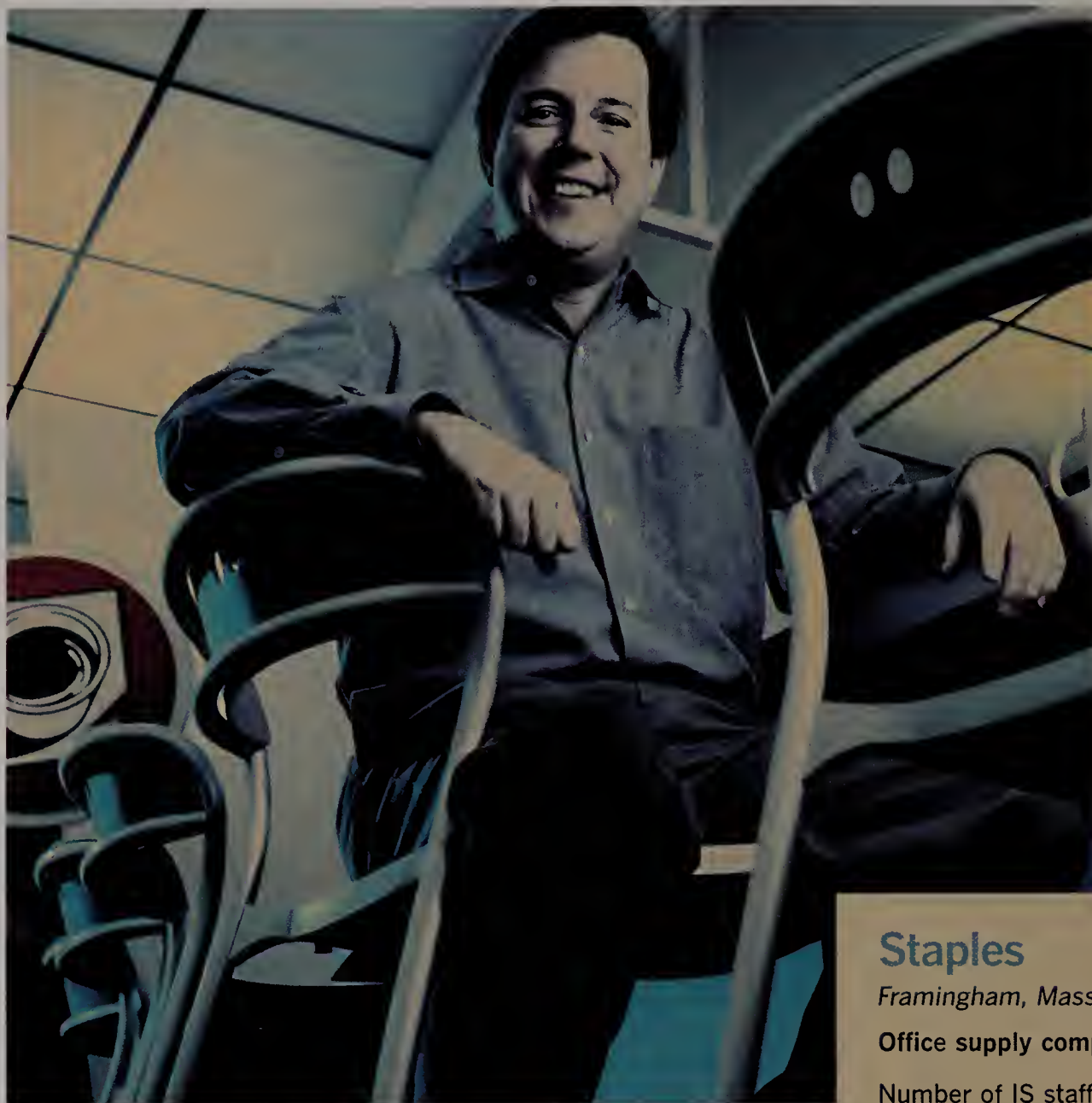
- ▶ Learn how to build a Web team without ruffling legacy feathers
- ▶ See how hip websters can work side by side with traditional IS staffers
- ▶ Find out how to integrate Web and legacy functions

PHOTO BY WEBB CHAPPELL





Despite foosball and a coffee bar, it's not all fun and games for Staple.com employees.



Staples.com CTO Mike Ragunas works closely with IS.

sporting goatees and hair gel, take a football break. A vibrant red ticker banner flashes news about Staples.com across the room. Walls are painted bright yellow, and mosquito netting separates a lounge area from a maze of open cubicles where khaki-clad hipsters type Java code. Suddenly, you feel very old. Meet the Web team.

To attract IS talent, focus staff on Web initiatives and get their websites up to speed as quickly as possible, many companies—including Staples—are choosing to split their IS groups in order to form lean and mean Web divisions, even if it means coping with some grumbling from those left behind to maintain legacy systems. “Why don’t we get beanbag chairs?” some are moaning. Still, there’s often no way to get around the divide-and-conquer strategy as large companies take their first e-business steps. “If you can

get an organization to move faster by creating a separate group, then you should do it,” says Brian Farrar, chief operating officer at the Chicago consultancy Xpedior. For IS leaders and their counterparts in the dotcom arena, the trick is to keep the groups connected by developing joint projects, offering training in Web technologies for those who want to make the leap and reinforcing the mantra that legacy systems remain crucial to a company’s IS shop—and are increasingly integrating with the Web anyway.

At Staples, a company whose claim to fame is selling products that help keep businesses running smoothly, 13-year IT veteran Mike Ragunas—who was appointed CTO

of Staples.com last year—meets weekly with Staples CIO Brian Light. The purpose of these meetings is to coordinate projects, staffing and strategic planning between the dotcom unit and the traditional IS department. There’s healthy competition between the two units when it comes to attracting talent, but Light and Ragunas insist cooperation is key to dotcom success. More than 30 of the 95 employees at Staples.com have come from Light’s IS department, and the two groups have been working together to perfect an Internet kiosk program recently installed in some Staples stores. “If we want to compete with Internet startups, we need a focused team,” Ragunas says. “But we don’t see it as black and white. We work closely with people in the IT infrastructure across the whole enterprise.”

Staples is an example of a company creating a startup-like atmosphere, complete with dotcom décor within its four walls, in order to galvanize its e-commerce presence. With no rule book available on how to organize staff for e-commerce, companies are trying everything from creating closely integrated Web groups to independent spin-

offs miles from company headquarters. In many cases, IS departments are split, and in others, entirely new units are formed, led by people from the business side. Creating some sort of separate group dedicated to promoting a company’s Web presence allows brick-and-mortar companies to attract IT talent and move quickly to establish themselves on the Internet, many analysts agree. Some caution, however, that splitting up an IS group can hurt morale among staffers left off the Web team and may actually get in the way of creating a unified Web strategy.

Staples

Framingham, Mass.

Office supply company

Number of IS staff: **500**

Number of IS staff
on Web team: **95**

Web team perks: **Foosball, Ping-Pong table, free cookies and M&Ms, coffee bar, lounge area, stock options (brick-and-mortar employees get these too)**

How do you choose a UPS

when you can't even guess how many critical systems you'll have to support next year?

By picking a UPS scalable to your network requirements, space, and budgetary needs.



For over 30 years, Liebert has provided power protection for the world's most critical systems. We designed the new *Nfinity*™ UPS to carry on the tradition of Liebert reliability in today's critical network applications.

The modular design allows you to configure *Nfinity* to match your changing power needs, and all modules are hot-swappable, allowing for uninterrupted performance when you service or expand the system. You'll find redundancy and patent pending intelligence features in the power and battery modules, power bypass systems, communication paths and system controls. No other UPS achieves that tremendous breadth of reliability.

Nfinity offers superior value. It's extremely cost-efficient to operate and ships preassembled and pretested, eliminating costly user assembly time. You're also backed by Liebert's service organization - trained and staffed to support you 24x7x365. For complete product information, visit our website at www.nf3.liebert.com.

Nfinity - the easily scalable, incredibly intelligent, remarkably redundant UPS that takes systems availability to the next level.

To find your local Liebert Representative or for information on becoming a VAR:

800-877-9222 dept. NF3

www.nf3.liebert.com

info@liebert.com

 **Liebert®**
KEEPING BUSINESS IN BUSINESS.®

As a result, some smaller companies are deciding to forgo the autonomous Web group in an effort to avoid morale problems. While they are feeling the same pressure as large companies to improve their e-business offerings, smaller companies—with smaller IS departments and fewer resources—are finding that they are able to create momentum without splitting up the IS department. Mikron Industries, a Kent, Wash., manufacturer of custom-designed extrusions for the vinyl window and door industry, is beefing up its Web presence with its 14-member IS group and help from outside Web consultants. The company is working to transform a static webpage into an e-business offering that aims to cut costs and allow customers and suppliers to do business with Mikron online. “Our current development group understands our core manufacturing business,” says Steve Christensen, the company’s CIO. “It wouldn’t make sense to leave anyone out as we develop our Web strategy.”

The ultimate winners in e-commerce will be the companies that successfully integrate their online and offline businesses, à la Charles Schwab, industry experts say. So when you go ahead and create that separate Web SWAT team, remember legacy talent goes a long way to help break down the wall between a website and customer fulfillment. “As companies develop B2B strategies, they are seeing that the Internet is more than a presence on the Web,” says Renee Sommer, a principal at Semeron, a Seattle consultancy focused on e-business. “Legacy talent is critical to the integration needed to make these new strategies work.”

As the following three stories of companies reorganizing their IS departments illustrate, there’s more than one way to effectively use your technical talent to build and operate your e-commerce group. In order to jumpstart their Web initiatives, all three of these companies opted to form separate Web divisions separate from the IS group. But they’re also all working on ways to integrate Web and legacy tasks in order to keep their staff happy and to better define an enterprisewide Internet strategy. And throughout the process, they are mixing IT with business strategy to create

Crossing the Channel

IS STAFFERS MAY sometimes look at their dotcom counterparts as a breed apart, but the two sides are increasingly casting aside prejudices and working together. Case in point: Staples’ in-store Internet kiosks, which are the result of months of collaboration between Staples.com employees and a group from traditional IS, as well as some staffers from the catalog division.

A total of 32 employees—10 from Staples.com, 15 from the corporate and store systems, and seven from the direct catalog business—got together just after the launch of Staples.com in November 1998 to put together a kiosk program they hope will boost customer loyalty, brand identity and overall efficiency. Twenty Internet kiosks were installed in Staples stores in June, allowing customers to order products they can’t find on the shelves. After a pilot period, the company expects to install kiosks in more of its 1,000

stores in the fall, although the exact number hasn’t been determined.

“The goal is to recognize customers no matter what channel they shop,” says Scott Floeck, vice president of corporate store systems in Framingham, Mass.

The kiosk employees worked in different offices within the same building but met regularly to hammer out their strategy. While Floeck’s team was in charge of creating a master plan, the team from the Web group focused on user interface design and identifying integration points necessary to hook up the Internet with the catalog. For their part, the catalog employees have been coordinating their AS/400 systems with Staples.com. “It’s an immense cultural change for Staples,” Floeck says. “People have tended to work within their own silos here. In this case, we’re truly working across channels to deliver something.”

—S. Patton

a new balance of power that is hoisting IS leaders alongside their business counterparts. “We’re not talking about a set of technology issues,” says Xpedior’s Farrar. “We’re talking about a business revolution based on technology. If your organization can create new opportunities for technologists, you’re on the right track.”

Avoiding Splitting Headaches

Made2Manage Systems, a provider of e-business applications and ERP systems for small and midsize manufacturers, prides itself on consistency and discipline—not on making bold moves. Open fields and farmland aren’t far from its head-

quarters in an Indianapolis office park, where software engineers painstakingly build systems that help their clients take orders and keep their books. “You’ll take a company’s business down if you screw it up,” says Gary Rush, vice president and CTO. “We don’t tend to hype things. If anything, we’re culturally too conservative.”

Thousands of miles from coastal dotcom meccas, Made2Manage started contemplating its Internet strategy last year in a fashion akin to its own culture—cautiously and deliberately. During the last half of 1999, the company began to monitor how the Internet was affecting its customers. And last December, officials brought in a dozen high-level execu-



Boost

Knowledge

Productivity

Margins

Sales

Efficiencies

Success

"Nothing has to travel faster than knowledge."

Rand Blazer, President and CEO, KPMG Consulting

When KPMG Consulting wanted to keep its 8,000 consultants ahead of the rapidly evolving e-commerce curve, it turned to DigitalThink. Our e-learning solutions have helped them not only get out in front, but stay there. KPMG Consulting is one of the leading companies who rely on DigitalThink to help them get to market faster with smarter employees, a more knowledgeable sales force, and customers who understand how to use their products and services. To find out how cutting lead time can lead to a better bottom line, visit us at www.digitalthink.com.

DigitalThink

SMART COMPANIES GET IT

www.digitalthink.com

NASDAQ: DTHK

tives from among its customers across the country to find out firsthand. What they heard gave them a jolt. One customer spoke of losing a longtime client to an offshore provider after coming up short in a reverse auction. That executive and others were looking to Made2Manage to help them do business on the Web and quickly.

Responding to the sense of urgency from customers, senior managers at Made2Manage decided to pull a dozen people out of the 80-member IS department to form a separate "Eport" group. Their mission: to work at full speed to launch and maintain m2m-Eport.com, a website housing Made2Manage's Web-based tools and services. "Ultimately, for the intensity and focus we want, and to unleash an entrepreneurial spirit, the

best thing was to put together a self-contained team," says Christopher Clapp, vice president and general manager of the Eport group.

Made2Manage created the separate Web team in order to foster a faster-paced, experimental spirit that was foreign to its core business. So far, results are encouraging. Eport launched its site March 1 and doubled its traffic in two months. By the end of May it had 1,400 total customers, with around 600 returning each week. "We would do it again the same way," Clapp says. In fact, the small group has worked so well that the company has decided to restructure the entire IS department into smaller groups in order to push some of that entrepre-

neurial energy into project teams working on the legacy ERP product. To ensure that these small groups, including Eport, cooperate with one another, the company recently created the new position of chief technology officer to oversee and coordinate the groups at a high level. "In the end, the technologies will have to be coordinated, and I think that will happen soon," says Rush, who used to oversee the group responsible for the more traditional client/server enterprise applications.

Eport's inception didn't come without some serious pain, however. When the staff first

heard of the split, hallway discussion and watercooler whispering centered around the new group. "People here were asking, 'Are we really working on the coolest thing right now? Does this mean we aren't as important on the legacy side?'" says

Michael Hussey, director of product development who oversees 40 ERP applications. "The trick is to talk to people and let them know that what they're doing is still important."

The Eport division is based in the same office complex but in different building than the rest of the IS staff. The blue-gray cubicles are identical, although the Eport staff did go out to Wal-Mart to buy a beanbag chair to add ambiance. Salaries are comparable to the main group, ranging from around \$60,000 to \$120,000 a year, although hours have been longer to ensure the website got up to speed quickly. The average Eport employee is in his 20s, compared to upper 30s for other IS employees. "The atmosphere is alive and electric and passionate," says Helen Follett, manager of site development at Eport.

To dispel the notion that Eport folks are getting more attention and having all the fun, Rush and other senior managers have worked to make it clear that those on the legacy side will be encouraged to work on Web-related areas such as browser-based products and site

Made2Manage

Indianapolis

Provides e-business applications and ERP systems to small and midsize manufacturers

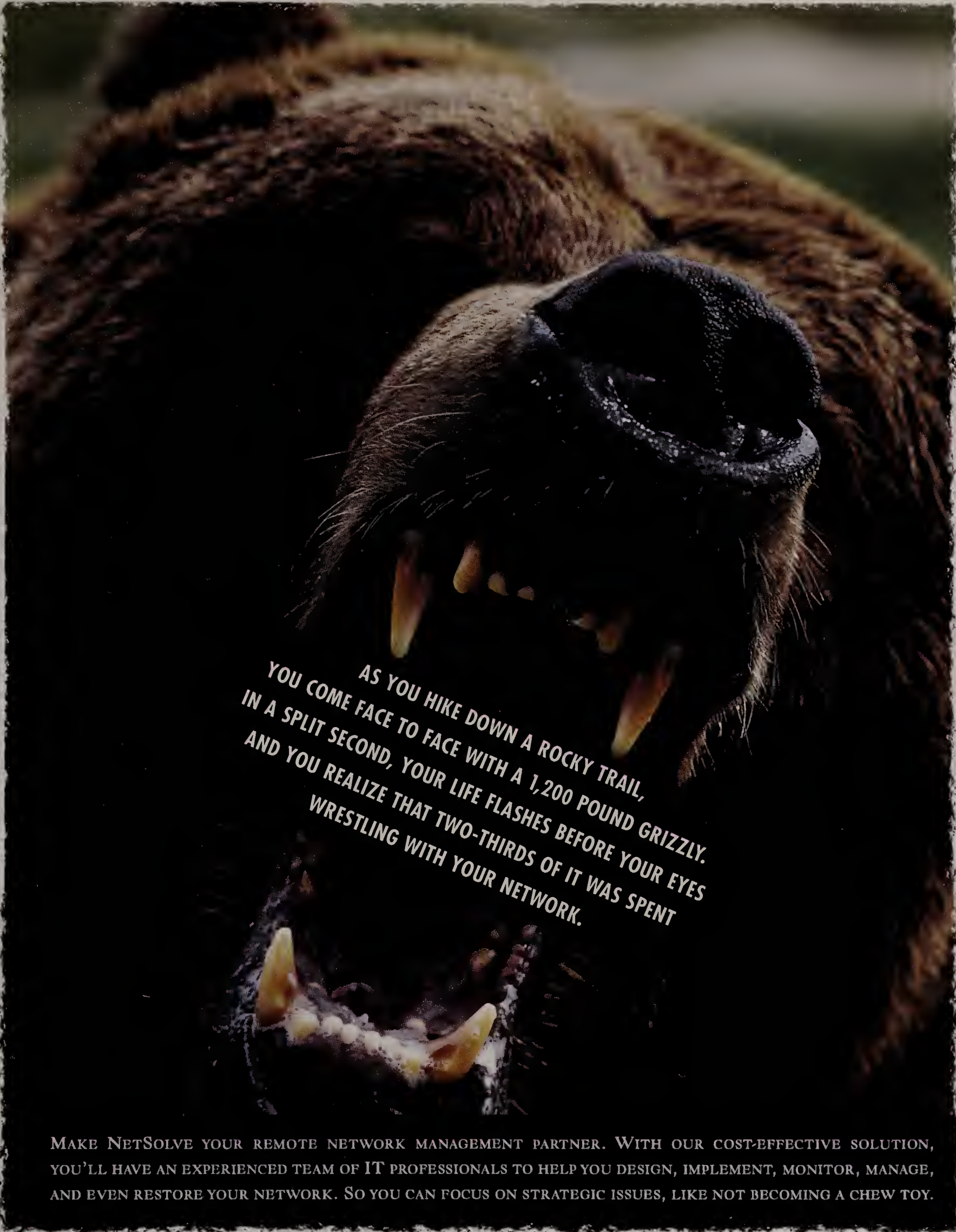
Number of IS staff: **80**

Number of IS staff on Web team: **12**

Web team perks: **1 beanbag chair**

CTO Gary Rush of Made2Manage coordinates Web and legacy technologies.





AS YOU HIKE DOWN A ROCKY TRAIL,
YOU COME FACE TO FACE WITH A 1,200 POUND GRIZZLY.
IN A SPLIT SECOND, YOUR LIFE FLASHES BEFORE YOUR EYES
AND YOU REALIZE THAT TWO-THIRDS OF IT WAS SPENT
WRESTLING WITH YOUR NETWORK.

MAKE NetSolve YOUR REMOTE NETWORK MANAGEMENT PARTNER. WITH OUR COST-EFFECTIVE SOLUTION, YOU'LL HAVE AN EXPERIENCED TEAM OF IT PROFESSIONALS TO HELP YOU DESIGN, IMPLEMENT, MONITOR, MANAGE, AND EVEN RESTORE YOUR NETWORK. SO YOU CAN FOCUS ON STRATEGIC ISSUES, LIKE NOT BECOMING A CHEW TOY.

99.5% AVAILABILITY GUARANTEE THOUSANDS OF NETWORKS SERVED PROVEN SINCE 1994
WEB-ENABLED TOOLS 24/7/365 REMOTE NETWORK MANAGEMENT 1.800.528.3981

WWW.NETSOLVE.COM/CIO



NETSOLVE®
YOUR REMOTE CONTROL™

Web Strategies

servers. "It's not like Eport is the only cool Web stuff we're doing," Rush says. "It wasn't like the cool stuff versus the boring stuff." In the beginning, those on the legacy side were

says Follett, who now works up to 60 hours a week instead of the typical 50 hours she worked on the legacy side. "But I think people are excited about the pace of change now.

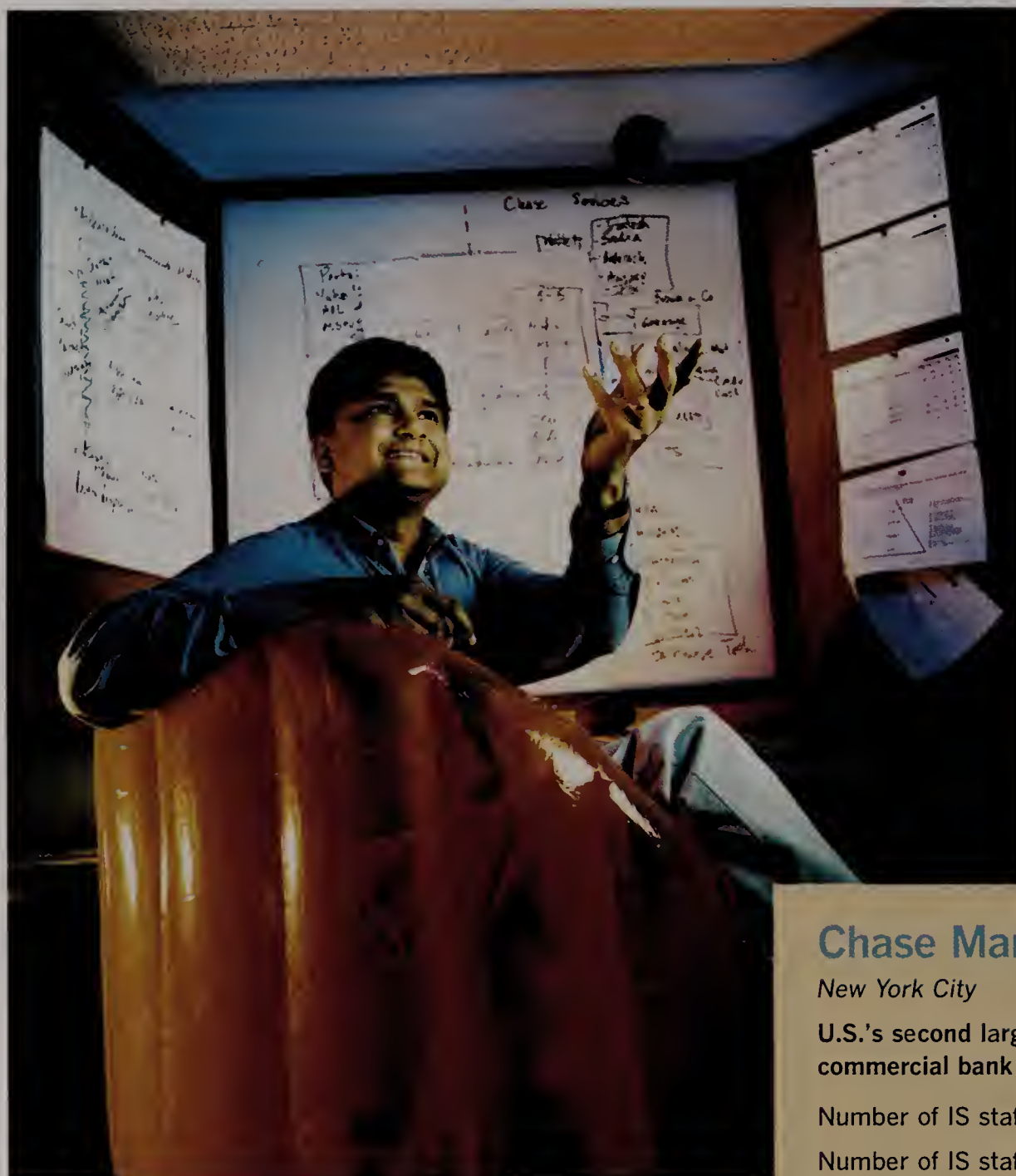
in the company's Park Avenue headquarters, however. The beige cubicles are similar, and neckties are scarce in both organizations now. "The mental atmosphere is very different though," says Patel, Chase.com's CTO, who until last April was head of systems architecture in Chase's national consumer services organization. "There's a definite energy and sense of urgency. It may look like a bank floor, but it's very much like working in a dotcom environment."

Chase.com as a division of the company (not the site itself) was launched in June 1999 in a move to accelerate Internet ventures in the bank's old-line business units and to invest in Web-related business ventures. Led by Denis O'Leary, former Chase CIO who is now executive vice president in charge of Chase.com, the Internet group isn't functioning alone. It's working to change the way business is done in the entire company. Though housed in a separate building, those at Chase.com stress they are working constantly with the consumer and institutional business groups in order to put both consumer and institutional products progressively onto the Web.

When deciding how to build a staff for the dotcom arm last year, Chase used a hybrid approach that included internal transfers and outside hires. Chase.com now has about 40 IS employees out of the thousands in Chase's worldwide IT organization, and job mobility is encouraged between all of the different IT groups. So while the Web team is separate, its ultimate goal is to integrate the Web into all levels of the bank's business.

"Initially, a lot of people thought this was a special Internet group," Patel says of traditional IT. "They soon realized they would have to play a role in our Web strategy as well, by reengineering back-end capabilities and improving customer service and fulfillment. Everyone here has a vested stake in making our Web presence successful."

Keith Hunter, who has worked in Chase's



Chase.com CTO Ameet Patel emphasizes Web training throughout the IS group.

Chase Manhattan

New York City

U.S.'s second largest commercial bank

Number of IS staff: **18,000**

Number of IS staff on Web team: **About 40**

Web team perks: **None yet**

curious about the new separate group, says Chris Lenzo, a business systems architect who works on the company's legacy systems. "It was more a question of What is Eport? than Should I be a part of Eport?" Lenzo says. He adds that senior management made it clear to their staff that legacy products weren't going to be abandoned and that partnerships Eport develops will rely on back-office technology.

"The company went through a radical change, and there was a period of transition,"

There's still a passion and energy, and we're trying to figure out what we need to do to keep it going."

Chasing the New Economy

Several blocks from the midtown Manhattan headquarters of Chase Manhattan, Ameet Patel is working with the 120 staffers at Chase.com to push the financial institution into the Internet age. Chase.com's offices don't look much different than those



Pergo® Inc. “Go Live” with Intenia

Raleigh, NC - Pergo Inc. recently celebrated a successful implementation of the Enterprise Application Solution, Movex. Peter Billquist, CIO of Pergo Inc., accepted the “Go Live” award on behalf of the implementation team.

According to Billquist, the Company's rapid growth in the North American market spurred the decision to implement an integrated enterprise application. An internal cross-functional implementation team included Billquist and key personnel from financial/accounting, manufacturing, distribution and customer service areas.



“This was definitely an enterprise-wide project, not just an IT project. We expect Movex to be a crucial element in our continued growth and success, enabling us to unify our business processes and supply chain. In addition, the Movex environment will make it much easier for us to pursue e-business initiatives, which are definitely on our horizon,” Billquist concludes.

A subsidiary of Perstorp AB, Pergo Inc. is the inventor and world's leading marketer and manufacturer of high-quality laminate flooring for residential and commercial environments.

To experience a “Go Live” celebration with Intenia, call us at 800.SW.MOVEX, Extension 51784.

data centers for the past 16 years, says the dotcom group held some allure for back-office staffers but that he personally wasn't tempted to switch over. "I wouldn't mind being in the dotcom world," says Hunter, senior vice president of U.S. operations for The Chase Manhattan Bank. "But I don't feel held back here because I believe massive back-office operations are needed to support the Web applications."

Chase has an enormous and complex IS shop, with about 18,000 employees worldwide. Three CIOs individually oversee the bank's consumer organization, the institu-

arate Web team and issued shares last year specifically tied to the division's performance. These so-called tracking shares, Staples officials say, have helped the company attract and retain key talent and put it on an even playing field with dotcom startups.

Just across the hall from Staples.com, however, those in the traditional Staples IS department sometimes raise their eyebrows at their trendier colleagues. The dotcomers, after all, have Ping-Pong tables and lounge areas—and stock-related compensation plans. In a bid to head off the potential of internal strife, Staples is now giving dotcom stock options to those

helped build the company's first website in 1995, and he remembers when Staples.com started out in a couple of cubicles. When the company's e-commerce site was launched in November 1998, the IS departments were still integrated. Quickly, Ragunas and Light both saw that in order to stay competitive they needed to build an IS department tied to Staples.com.

The typical antagonism between the trendy and the stodgy hasn't been as severe as it might have been in an older company, since 14-year-old Staples doesn't yet have much of an old-school mentality, Light says. Still, IS leaders

have worked to make the jobs supporting the retail and delivery groups attractive by making it clear that e-business goes far beyond the commerce focus of Staples.com.

Creating a separate group dedicated to the Web allows brick-and-mortar companies to attract IS talent.

tional (or wholesale) side and a group called eTech, which is responsible for the bank's e-mail backbone, corporate network and overall internal infrastructure. While Chase.com was getting ready to launch its consumer website, staffers from the two business groups were also brushing up on their Java, XML and Oracle skills. "Everyone has to learn the Internet languages because that's where the bank is going," Patel says.

Chase.com, which will remain separate into the foreseeable future, plans to move into new offices in the coming months, replete with lounge areas and brightly colored furniture. But the bank has avoided an us-and-them attitude when it comes to the Chase.com team by emphasizing Web technology training across its massive IS group. It has also found that not everyone wants to sip cappuccino and work until midnight. "The dotcom experience was cool six months ago," Patel says. "Not everyone's built to get into a dotcom type of world."

The Dotcomers Down the Hall

Staples recognized that selling pencils and Post-its to small businesses might not be considered sexy to the under-35 dotcom crowd. So the company created a sep-

arate Web team and issued shares last year specifically tied to the division's performance. These so-called tracking shares, Staples officials say, have helped the company attract and retain key talent and put it on an even playing field with dotcom startups.

Staples is planning to take Staples.com public in the near future, market conditions willing, and will keep a 70 percent stake in the dotcom subsidiary. Though Staples.com is just down the hall from its brick-and-mortar counterpart, an IPO would make it all the more autonomous. Despite the separate entities, Light and his counterpart at Staples.com, Ragunas, stress they are maintaining close ties in order to boost morale and foster a harmonious coexistence. So IS employees on the brick-and-mortar side are learning Web technologies, and some are jumping to the dotcom side. "Early on, the separation can help with focus and speed," Ragunas says. "But as you grow, there is more and more of a need to integrate the two sides."

When Ragunas started working for Staples 13 years ago as a management trainee, he was fresh out of college at a fledgling company. He

helped build the company's first website in 1995, and he remembers when Staples.com started out in a couple of cubicles. When the company's e-commerce site was launched in November 1998, the IS departments were still integrated. Quickly, Ragunas and Light both saw that in order to stay competitive they needed to build an IS department tied to Staples.com.

The typical antagonism between the trendy and the stodgy hasn't been as severe as it might have been in an older company, since 14-year-old Staples doesn't yet have much of an old-school mentality, Light says. Still, IS leaders have worked to make the jobs supporting the retail and delivery groups attractive by making it clear that e-business goes far beyond the commerce focus of Staples.com.

For example, those outside Staples.com are working on the company's intranet site and intranet portal, putting benefits and job openings online and creating a portal for vendors. "Our selling point has been that every part of the IS group is doing e-business," Light says. "That includes order processing, call centers and package tracking."

Kenneth Miller, who reports to Light as senior manager of technical services, says he hasn't noticed a lot of jealousy on the legacy side because people there understand the importance legacy systems play in supporting e-commerce. "I wasn't really tempted by the dotcom allure myself," Miller says. "I've always been a technical analyst type of person."

IS employees from Staples.com and their brick-and-mortar counterparts will be increasingly working together as the company develops new ways of doing business, even though the dotcom arm will remain separate. "Our management team sees the importance of technology and how it can potentially change the structure of our business," Light says. "Everyone can play a part in that." **CIO**

Do your IS and Web departments get along? Let Senior Writer Susannah Patton know at spatton@cio.com.

The real world. The e-world.



Kelly Ward
Director of e-Business

Acuent (ăk-u-ent) Practical people delivering integrated business and technology solutions that work.

Acuent Partners

ACS Hyperion®
Bluebird® Microsoft™
Bottomline PeopleSoft™
Technologies Plumtree™
CollegeNET® Sequoia
Compaq Software
Concur SilverStream®
Corio™ Vignette™

AcuentSM Services: Integrated solutions for an e-world.

- e-Business**
 - Strategy
 - Web integration
 - Enterprise application integration
 - Web-enabled ERP
 - Security
- e-Engineering**
 - Business process redesign
 - Management consulting
 - Benchmarking

- Outsourcing
 - Business process
 - Enterprise applications
 - Information technology
- ERP
 - Extended ERP/CRM
 - ERP integration

www.acuent.com
877-402-7804

**DataStudy and
Kinetic Technologies
are now Acuent.**



INTRODUCING THE SECURITY BUILT ON THE "ONE SIZE

It's called Symantec Enterprise Security. A flexible, modular solution for everyone who recognizes that enterprise security isn't an expense, it's an investment in your future. Symantec Enterprise Security is comprehensive, without being

Call us today at 800-745-6054, or visit
www.symantec.com/enterprise-security
for more information or to speak to a sales representative now.

confining, so you can construct the solution that's right for you. We'll help assess your security needs and let you choose from among our best-of-breed, multi-platform Internet security products. Along with our world-class professional

FIRST ENTERPRISE SOLUTION PRINCIPLE THAT FITS NONE."

services and support, you'll also have access to intrusion prevention products assess, monitor and Symantec's security partners, and to the Digital enforce predetermined security levels. So critical Immune System™, our unique technology for detect- business and e-commerce assets stay secure. With ng, defining and curing viruses. Symantec's Symantec Enterprise Security you'll have the tech- nology and the confidence you need content-filtering products let you SYMANTEC.™ to do business in a connected world. manage Internet usage. Finally, our



Redtape.gov?

BY HEATHER HARRELD

Governments are offering their services online, but will they truly streamline processes or will people end up waiting in line online?

E-government: Until recently, this meant nothing more than static webpages that reproduced the bureaucracies resting at the heart of federal, state and local agencies. For decades, those same bureaucracies in the paper-based world have left citizens waiting in long lines or on hold for hours.

Reader ROI

- ▶ Learn how governments are providing electronic services through portals
- ▶ Evaluate the pros and cons of outsourcing portal development
- ▶ Determine the most effective strategies for Web presence

ILLUSTRATIONS BY ANTHONY VENTURA



As governments move services like voter registration and driver's license renewal mere mouse clicks away from their constituents, they are finding many different business models with which to accomplish the tasks. Some are doing internal development and some are outsourcing. Vendors in the e-government market, which IDC (a sister company to *CIO's* publisher, CXO Media) predicts will exceed \$100 billion by 2008, are offering a variety of solutions, ranging from simple front-end Web interfaces to completely integrated systems that eliminate the paper chain.

Governments on the cutting edge of offering electronic services are overhauling their processes and systems, turning them inside out from agency-centric to customer-facing systems that span agency silos. Government agencies are also facing privacy and security questions and grappling with the age-old problem of funding these new electronic offerings, which often still operate in tandem with identical paper-based services.

By an almost overwhelming majority, governments are turning to portals—umbrella websites that operate as a front door, linking users to additional resources. According to an April survey from the National Association of State Information Resource Executives, 20 states (representing almost 50 percent of the nation's population) consider their websites to be por-

tals. Eight more states (representing 23 percent of the population) reported plans to launch a portal within a year. While most states have developed portals internally, the report says, others are increasingly looking to vendors to develop or maintain their sites.

Virtual Town Hall

State governments are leading the charge toward e-government, as they are unencumbered by the bulk of the federal government and operate closer to their constituents, who are demanding the ease of Amazon.com for tasks like renewing a driver's license. The ultimate vision is to offer the government version of My Yahoo and MyNetscape personalized links to everything from local traffic reports to making tax payments online.

In April, North Carolina announced its North Carolina@-Your Service, a portal that lets citizens and businesses perform various tasks online. The state contracted with consulting firm Arthur Andersen, which subcontracted Yahoo for content and an electronic store to accept payments. The contract also includes an option to transfer operation of the site back to the state, says Rick Webb, North Carolina's CIO.

Gov. Jim Hunt announced the grand opening of the portal in August, and officials are counting on media coverage from



**WE CAN HELP
YOU HERE.**

If you're a manufacturer, your future can hinge on a single word: e-business. With MAPICS on your side, you can feel e-lated. Our software solutions help you use the Internet to securely link your customers, partners, and suppliers into your enterprise. We enable real-time Web-based collaboration to help you move products from design to delivery faster than ever before. All while maximizing your efficiency and boosting your bottom line. And all MAPICS products are e-business-ready today, so you can deploy your e-business strategy at your own pace. For more information or to enroll in our e-Business for e-Manufacturing Seminar Series, call 1-888-3MAPICS. Or visit www.mapics.com to learn more. And do more. Quicker.



AND HERE.

the announcement and a scheduled statewide public speaking tour to market the new online offerings. Officials are also exploring options for incentives to encourage citizens to use the site, Webb says. "There's a natural draw when a citizen can have 24/7 access to government at home."

During the first six months of the contract, Arthur Andersen representatives will work with state agencies to link legacy systems to the portal front end, according to Webb. Agencies will

million for portal startup costs. Individual agencies will be responsible for funding their own applications. None of the development or maintenance associated with portal operations will be outsourced, and citizens will not be charged to use the services. "People want access to their government, and it is our responsibility to provide it," Kolodney says. "We see this as a core competency, and we don't believe in giving away core competencies."

**"There's a natural draw when a citizen can
have 24/7 access
to government at home."**

—Rick Webb, North Carolina's CIO

be free to work with other vendors in developing e-government applications, but will need them approved to ensure compliance with the enterprisewide e-commerce plan. "The agency applications tie back to the portal, [and] we still get to competitively bid it," he says. "We still have the agencies driving it from a business perspective. We truly wanted that enterprise, one look, one feel approach."

Washington state is also taking an enterprise-level approach to its portal, which will be the facade for the state's complete systems overhaul in preparation for offering electronic transactions. The state plans to use sophisticated security architecture to provide digital signature technology for businesses and citizens to secure online transactions.

Even before the state began to Web-enable its systems, it started offering online services through its homepage, Access Washington. The site, which logs a million hits per month, presents a clear overview of the available information and services without dragging along any bureaucracy from the paper-based world. Users are ushered into a wide variety of options, such as ordering documents online, looking up a person's criminal history or even applying for college admission. Businesses can pay excise and unemployment taxes, and they can file wage reports. The site also offers clear directions. "Obviously these transactions don't make sense unless they transform the business processes end-to-end," says Steve Kolodney, Washington's CIO and director of the state's Department of Information Services. "It's not enough to set up an Internet lemonade stand outside your firewall and say you're offering services."

To pay for the infrastructure required to support the digital government plan, Washington's legislation appropriated \$10

Like other states, Washington will pull data from multiple agencies needed for certain "life experiences," such as opening a business or planning retirement. The state has also quickly established security measures to protect advanced online transactions, such as accepting taxes from businesses and citizens online. This summer, the state rolled out TransAct Washington, which provides digital signature technology for identity verification and data protection during transmission.

Businesses and citizens receive their own digital signature either online or in person from a bank, depending on the sensitivity of the transactions they will be performing. Portal users will have to present their digital signature only once on entering the portal, and the system will recognize them as they move through various pages within the portal.

Despite this movement among state governments to offer personalized links, the core process of moving administrative services to the Internet involves consolidating reams of sensitive personal data. This could engender the fear of government evolving into "Big Brother" as more databases are merged to store the personal information required for customizing desktop links, says Mark Struckman, director of electronic government programs at the Folsom, Calif.-based Center for Digital Government. This issue could be lethal if not handled correctly by government agencies, he says.

"It will create absolute uproar if the government is not proactive in explaining how privacy and security are going to be handled," Struckman says. "The government has to put on its public relations and marketing hats and explain that when one agency looks at your data, it can look at only the fields that pertain to its job."



WWW.
WE
JUST
CAN'T
LOSE
ANOTHER
\$45 BILLION
TO
HACKERS
.COM

Introducing beTRUSTedSM

Securing the Internet is no longer an impossibility. With advanced levels of security and verification, people all across the European Union have been sending and securing everything from multi-million dollar transactions to single e-mails. It's your turn now.

Get the full story at www.beTRUSTed.com

PRICEWATERHOUSECOOPERS 

Join us. Together we can change the world.SM

States must also proceed with caution when outsourcing digital government to ensure that they are not shirking their stewardship responsibilities, Struckman says. Officials must carefully detail who owns the data and what entity may be allowed to mine that data once a third party is involved. Redundancies in the network are also necessary to ensure adequate backup if the network goes down.

ernment instead of on behalf of the government,” says Joseph Nemelka, executive vice president of the market development division at NIC. “We simply are a resource that they have brought in for these core competencies.”

NIC leverages the revenue it generates from commercial applications to provide free services through the portal such as community calendars, child care provider licensing data, and information on legislative and social programs. These free services comprise 95 percent of all NIC offerings. In some instances, citizens can save money by using the online services. For example, many NIC states now offer free online corporation searches.

The self-funded approach mitigates state risk, Nemelka says, because the state doesn’t have to invest any capital, and the interest of the state is aligned with that of the vendor. The vendor makes money only if citizens and businesses use the applications. Also, NIC is motivated to market its services, which it does via county fairs, library postings and association



The portal is typically financed through **convenience** or transaction-based fees charged to users for **bypassing** the long lines.

For Free or Fee?

While North Carolina and Washington received legislative funding for their portals, many states have opted for a self-funded model, requiring no state expenditure. Under this model, the portal is typically financed through convenience or transaction-based fees charged to users for bypassing the long lines or other inconveniences of paper-based government business. These fees are typically split between the state, which often receives the lion’s share (as much as 80 percent), and the vendor.

The National Information Consortium (NIC) operates portals for 11 states, including Georgia, Indiana, Iowa, Nebraska, Utah and Virginia. While two of the states have a fixed price contract with NIC, the others operate under the self-funded model. NIC sets up a corporation in each state’s capital, buys all hardware, software and application development tools, and staffs the office with its employees. Users pay the freight via convenience and transaction fees. “We do business with the gov-

meetings. NIC may soon offer states a performance-based contract, where the state can either pass fees on to the citizens or work out an agreement with NIC to share some of the cost savings associated with procedural efficiencies.

The self-funded business model also lets NIC-affiliated states leverage application work done for other states for their own electronic service offerings, says Robert Chandler, general manager of Information Network of Arkansas and an NIC employee. Arkansas turned to the NIC model because government officials didn’t want to invest taxpayer money for information and services that were already available from traditional government sources, he says.

“We can just acquire the code at no cost, and then we modify it,” Chandler says. “Getting the application up is just the beginning. As more people use it, you have to continue to add



Cool Things ken, *eJiva chief strategist* has done:

Developed and deployed a web strategy that increased sales from \$10,000 a month to \$1 million *a day* and web customer base from 0 to 8,000, while expanding order size by 25%. . .in less than 24 months.

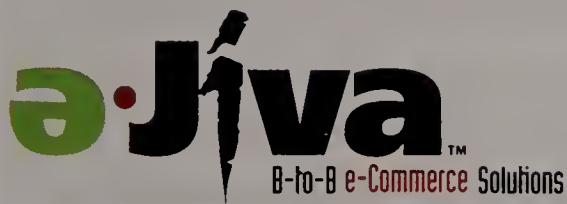
Need More Cool? Feel Free to Add an Earring.

What's cool? To us at eJiva, it's moving your company from bricks and mortar to clicks and mortar. Going far beyond fancy designs and bits-and-pieces of technology wrapped up in a Web page. Creating real solutions that unlock your intellectual capital and improve your bottom line, like Ken did.

And we do it every day. In manufacturing facilities and offices just like yours. We work with you to clarify your issues and develop the strategies to give you a competitive edge that leaves the competition in the dirt. Then we work with your people—from C level to the shop floor—to give them the tools and skills they need to do their jobs better, smarter, more responsively.

We think that makes us pretty cool folks. But, you don't have to take our word on it. You'll see us everyday, working until you're satisfied, with a "no surprises" fixed-time, fixed-price agreement.

So, what's your idea of cool? Working with an e-services firm who really knows how to transform your business to an e-business and makes things happen on time, on budget? Or working with one that acts cool and leaves you cold?



Penn Center West III Suite 320 Pittsburgh, PA 15276
1.877.eJiva.com (p) 412.249.2300 (f) 412.249.2351 www.eJiva.com

Dallas • Sydney, Australia • San Jose • Los Angeles • Pittsburgh • St. Louis • Tampa

value. As demand requires, we continue to add staff. If we don't continue to add value, we won't stay in business."

The Arkansas portal, launched in 1997 as an informational site, now offers more than 100 online transactions like professional licensing, hunting and fishing licensing, tax filing and one of the only applications in the country that lets companies file articles of incorporation online. While the state has offered citizen incentives in the past—such as a \$2 discount for renewing a driver's license online—officials have had to stop that practice because some citizens complained it was unfair to those without access to a computer, Chandler says.

For states concerned about turning stewardship responsibilities over to an outside source, NIC officials note that while it

provides the record format, it does not house any data. Some agencies have NIC put the data directly into their legacy systems, while others want their own employees to initiate the upload into the legacy back end. While transaction data may be on NIC's server and backup tape at the end of the day, it is transferred to the agency systems overnight.

Arkansas's approach may prove one of the most popular business models for funding and operating government portals today, but it is not a sustainable option, says Robert Atkinson, director of the technology and new economy project at the Progressive Policy Institute, a Washington, D.C.-based organization with the mission of advancing the government's agenda for the information economy. "Governments

"It's not enough to set up an Internet lemonade stand outside your firewall."

—Steve Kolodney, Washington's CIO



that aren't willing to pay any money into [electronic services] can get up and running and put some applications online," Atkinson says. "Most jurisdictions in this country don't have the expertise to do this [in-house]. The risk of the outsourcing model is that they're getting the revenue from the users. Ultimately, I don't think the consumer is going to be paying for this. You don't pay now when you go to look at a deed."

Uncle Sam Wants You

The federal government has been slower to launch portals because doing so requires cross-agency collaboration, which is a foreign concept for many agencies that have always operated vertically within their own boundaries. However, some agencies, like the departments of Defense, Housing and Urban Development, and Education, have launched portals geared to offer electronic services.

The U.S. General Services Administration (GSA) is leading the effort to create a federal government portal designed to link the government's 20,000 websites and 100 million webpages. Called Firstgov.gov, this portal is designed to create a "Library of Congress" of government websites to ensure easy access to all federal information online, says Bill Piatt, CIO of the GSA. Because commercial search engines only link to frequently requested pages,

Remember when... It took boxing gloves to resolve invoice disputes?



Stop getting beat up over invoice disputes. InvoiceLink's patented technology completely Web-enables invoicing and payment, so you can present electronic statements, track disputes, answer questions, maintain an audit trail and view invoices with your trading partners in real-time. **No more going toe-to-toe over problematic charges. No more sparring over who's been short-changed.** InvoiceLink even lets your customers pay invoices online — all without writing a single check.

InvoiceLink is so collaborative ...you'll resolve invoicing issues without bruising your business relationships.

InvoiceLink[®]
CORPORATION
The currency of collaboration.

www.invoicelink.com

336.315.9336

U.S. Patent Number 6,044,362

only 15 percent to 20 percent of federal government webpages are accessible through those search engines, he says. That's a slim percentage of the average of 27 million Web users—or 10 percent of the U.S. population—accessing federal pages per month.

Eric Brewer, a University of California computer scientist and founder of the search engine developer Inktomi Corp., will build the site free of charge, saving a projected \$5 million to \$20 million in portal development costs. Firstgov.gov will be able to search a half-billion documents in less than a quarter of a second and handle 100 million searches each day. The portal's business model also includes a branding incentive program, which will allow other portals like Yahoo, AltaVista, universities or other private sector concerns, to access data from Firstgov.gov and market it on their sites with the Firstgov.gov brand or icon if they agree to certain terms and conditions, Piatt says. "It's silly for us to create the portal that everyone will use because people have different tastes," he says. "It will be like the Intel Inside for the search engine. Citizens, when they see that brand, will know it means certain things. Citizens accessing government through one of those brand portals should be able to access information without anyone tracking their movements

Access America is now going through its third redesign following customer feedback and will soon add private sector companies to its list of federal agency partners. Officials from the student financial aid office are working to share data about students and their loans with the 5,000 financial institutions throughout the country that provide student loans backed by the federal government, says Charlie Coleman, Office of Student Financial Aid director of innovations. "The students will have a complete account of the types of loans they've got. They can do debt planning and know what their monthly payments will be when they get out of school so that they can make better management decisions," he says.

The burgeoning e-government market is crowded with vendors offering various solutions for front-end interfaces that allow citizens to perform administrative tasks like paying parking tickets and other fees. It's clear that the most successful models include integration to back-end systems to streamline processes. This could create a truly paperless government. Cost savings generated from those efficiencies could enable governments to provide free services while generating revenue from more sophisticated online applications. However, without the

"In five years' time all governments will be Internet-enabled, or they won't be governments at all."

—Mark Struckman, Center for Digital Government's e-government programs director

and using [the information] for commercial purposes."

The branding incentive program will also require private sector portals to send any feedback received from users back to Firstgov.gov officials. The portal will route all feedback to the appropriate agencies making federal government redundancies "painfully obvious," Piatt says. Agencies can then revamp sites to align with user needs. The portal will not charge users, and agencies will be responsible for transaction support.

The Department of Education has assembled multiple agencies for its Access America for Students portal. Spawned from the Clinton administration's National Performance Review program, this site is a student's gateway to the federal government. It offers a variety of information and services online, from applying for federal student financial aid and registering for selective service to searching for a job. In the site's first year since its launch in May 1999, the number of hits grew from 1,500 to 63,000 per month.

correct system integration, agencies may end up with what Washington's Kolodney describes as an "Internet lemonade stand," a juvenile attempt to offer services and support with the electronic equivalent of a curbside storefront and a shoe box with which to collect the revenue.

The market may still be evolving, but the advantages of embracing e-government are clear. The stakes are much higher than using digital government to streamline processes. Government officials should look at portals and e-government as an economic development tool for companies evaluating an area for possible relocation, says the Center for Digital Government's Struckman. "In five years' time all governments will be Internet-enabled, or they won't be governments at all," he says. "Companies aren't going to locate in your jurisdiction, [and] your businesses and your people will go away." **CIO**

Heather Harreld is a freelance writer based in Cary, N.C.



Live two-way voice communication for the Internet.

**Talk
about
a great
idea.**

Live Voice for eBusiness. Adding the power of real-time, interactive voice communication to your website is simple with Live Voice™ by Lipstream. That's because Live Voice is the easy-to-implement, built-to-scale voice service for the Internet. What's more, Live Voice gives you the power to improve your consumers' experience, which increases site loyalty and boosts your profitability. No wonder so many of today's top Internet sites are talking about how they rely on Live Voice by Lipstream to bring customers back again and again. Experience the power of Live Voice for yourself at www.lipstream.com/voice, or call toll-free 1-877-LIPSTREAM.

© 2000 Lipstream Networks, Inc., "Lipstream," "Live Voice," and "Get a Real Voice" are trademarks and/or service marks of Lipstream Networks, Inc. All other trademarks or registered trademarks mentioned herein belong to their respective holders.

Lipstream™

Get a real voice.™

THE

An up-and-coming design firm has a radical notion: Technology should work for the user

BY MEG MITCHELL

PEOPLE PRINCIPLE

YOU'VE SEEN THE ADS SELLING THE WONDERS OF THE World Wide Web. Scored to rock and roll, the images and styles tend toward the outrageous and the bizarre. Cowboys herd cats. Hamsters hurtle through the air. The Mona Lisa's head pops off.

What this stuff has to do with the Web is anybody's guess—but it sure is...something. Harold Hambrose, who lives in a world of signs and symbols, images and icons, is not impressed. Actually, he's a bit put out.

"We joke about these ads," says Hambrose, the 33-year-old president and CEO of Electronic Ink, a Philadelphia-based electronic design company. Sure, he says, technology can decapitate Mona Lisa, but why bother? Why do something just because you can?

"If you go back to the Industrial Revolution," Hambrose says, "it's the same thing. Victorians created wacky objects because suddenly they could mass produce 400,000 piano legs that look like Grecian temple columns—not because that was a great form for that object, but because they could do it and everyone could have them. So, sometimes we take a look at the computer screens today, and we say, 'We're

PHOTOGRAPHY BY DOMINIC EPISCOPO

**Harold Hambrose, president
and CEO of Electronic Ink**

there again!' But we really need to make sure these things start to serve us better."

That's Electronic Ink's mission.

The company's premise is simple enough: If you expect people to use technology, you have to make it appealing to them. That's the principle Hambrose started with when he graduated in 1989 with a degree in design from Carnegie Mellon University. Hambrose saw a problem with the way electronic interfaces were being built. Too often, design came

ing video displays for the floor of the New York Stock Exchange. Clearly, the big guys are listening to the ideas of this small but growing, 53-person company, and they are starting to accept Hambrose's idea that technology's return on investment occurs only when humans successfully interact with it.

The company walks that humanistic talk, too. From a penthouse overlooking downtown Philadelphia, Electronic Ink's offices have no walls separating employees, mak-

tive capabilities of the average doctor? Nurse? Average person? They can tell us that the best chairs to sit in for eight hours a day are approximately this deep and this tall and have these sorts of features.

They can now provide us with information about the best digital environments—environments where information is not sequenced too deeply, where average line lengths of information are not more than so many characters. They can give us real data. They

Our clients always say to us, **'You know, we want something really pretty.'** I say, 'Well, it will be beautiful as a byproduct of its design. Useful, usable artifacts are never ugly.'"

after the technology was in place—mere decoration draped on something that was supposed to be useful. Hambrose wanted to change that and push design closer to technology. His idea, that the way human beings process information is firmly tied to the way information is presented, captured the interest of big technology players.

In 1990 Hambrose launched Electronic Ink. Now the company designs electronic interfaces like intranets, extranets, websites and free-standing video displays for clients in fields as diverse as health care, financial services and telecommunications. For each project Electronic Ink takes on, a unique combination of programmers, human factors analysts and designers work together from the get-go. The result? Software and applications in which function is faithfully married to form.

Electronic Ink's Philadelphia location allows it to draw its talent from many wells, including several local universities, such as the University of the Arts and Moore College of Art and Design, and from the swarms of young designers and programmers seeking to escape Manhattan's nosebleed rents.

Electronic Ink's clients include heavyweights such as MBNA Corp., First Data Corp. and Merrill Lynch & Co. One current project the company is working on is design-

ing collaboration not just a possibility but a necessity. Members of each of the three core groups—technologists, human factors analysts and designers—sit close enough to touch each other in spaces where the monitors hang below the glass-topped desks, so as not to hide the user's face—that most excellent slab of communications hardware. It is company policy that any employee can buy any book at any time and enter it into the library; so it is that books about Shaker furniture, quilt making and computer programming intermingle on the shelves.

CIO spoke recently with Hambrose and his wife Johanna, 37, who serves as COO and corporate counsel.

What do human factors analysts have to do with design and technology?

HAMBROSE: The human factors community has been around for about 60 years in America. They started with the study of how the human form relates to its environment. They provided us with a lot of really good information about the average length of the human leg, the average person's ability to see at specific distances, a lot of the very physical measurements of the average human. That built slowly into cognitive processes as well. How much can the average person remember? What are the cogita-

can also provide different evaluation methods. They can measure people's ability to perceive information. They can measure the accuracy of those perceptions and really help designers make better decisions when they're shaping these things. So, constant collaboration between this very scientific, psychological side and the design process of creating form is absolutely necessary. It's critical. And you'll find the most successful artifacts, whether they're three-dimensional objects or websites, are ones where designers and psychologists and programmers collaborated closely.

Where does design's collaboration with other disciplines come in?

I've always sought projects where we're working with psychologists, linguists, anthropologists, as well as programmers, solving the problem together. A lot of people pretend to have all these different skills at their disposal, but you rarely find one person with all those capabilities.

So I really looked to align the company with the human factors community, which was pretty well established in the mid-'80s or early '90s. What I found was a real reluctance from the human factors community to align themselves with a designer because they misunderstood what it was I did. They thought I was just there to make something

POWER. BRAINS. LOOKS.

IT HARDLY SEEMS FAIR.



Easy to Manage Server Appliances.

Looking for an unfair business advantage? Then get our new, scalable, high performance server appliances that are only 1U high, built with lights-out remote management and pre-configured so you can just plug them in and go. Because all's fair in love, war, and, of course, business.

 **networkengines**
www.networkengines.com



Hambrose with his COO and corporate counsel (and wife), Johanna

one can just hang out a design flag. There are design offices in the government. And if you go into a drugstore in Europe, you'll see in the products, from the labels to the shape of the objects, there's much more attention to design, for good or for bad. Sometimes the objects are more beautiful, sometimes they're overdesigned. But the fact is, design is playing a role in the mainstream.

Here, I think the American design community has not done a very good job teaching businesses how much they have to gain by employing design. Here, you'll see people buying technology first and saying, "Well, we'll worry about the design later."

How do you get your clients to understand the importance of design?

One of the things that we push at our clients is the fact that even though we're working on intranets, extranets, a website or software applications, it really can be broken down into designing communications, just making sure that technology effectively speaks to a human being. We bring them through this idea of a sender and a receiver and the fact that design is always somewhere in the mid-

In the United States, **it's a very complicated thing to sell design services** because our art education stops in about fourth grade."

pretty. But what I've been able to do is bring together human factors people, designers and programmers and really invent the company I wanted to work for.

How does the user community perceive design?

In the States, it's a very complicated thing to sell design services because our art education stops in about fourth grade. People think that design is just making things

pretty and in color. Design is really about process, whether you're an architect or a typographer or a product designer. It's really about how we shape objects around the human experience.

In the European business community, design is recognized more quickly as integral to business success. They consume a lot more design. Design is a lot more mainstream. In some European countries, design is actually government regulated. Not any-

dle to shape that message. We teach them about seeing messages in their everyday experiences. We show them that people have shaped these messages, people have devised ways of communicating based on the limitations of their audience for the conditions in which they're sending this message.

What sorts of messages are you talking about?

We can point to some pretty low-tech exam-

FREE APC
Back-UPS®
Office 350 to the
first 100 entrants.



Entrants will receive APC's
Power Protection Handbook.

One of the first 100 to mail or fax this
completed coupon or contact APC and
to win a FREE APC Back-UPS® Office
350. All entrants will receive a FREE APC
Power Protection Handbook. Better yet, enter
at the APC Web site!

Key Code
<http://promo.apcc.com> u943z

1-800-289-APCC x6140 • FAX: (401) 788-2797

APC
Legendary Reliability™

FREE APC Back-UPS® Office 350 to the first 100 entrants.

All entrants will receive a FREE APC Power Protection Handbook.

APC Back-UPS Office 350

☐ **YES!** Enter me to win 1 of 100 FREE APC UPSs and
send me a FREE APC Power Protection Handbook.
(See APC Web site for complete promotion details)

☐ **NO,** I'm not interested at this time, but please add me
to your mailing list.



Key Code
u943z

Name: _____

Title: _____ Company: _____

Address: _____

City/Town: _____ State: _____ Zip: _____ Country _____

Phone: _____

Brand of UPS used? _____ # _____

Brand of PC used? _____ # _____

Brand of Servers used? _____ # _____

©2000 APC. All trademarks are the property of their owners. APC2E0EB-US_2c • E-mail: apcinfo@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 36 WEST KINGSTON, RI

POSTAGE WILL BE PAID BY ADDRESSEE



AMERICAN POWER CONVERSION

KEY CODE: u943z

DEPARTMENT: B

132 FAIRGROUNDS ROAD

PO BOX 278

WEST KINGSTON RI 02892-9920



How to Contact APC

Call: (888) 289-APCC

*use the extension on the
reverse side*

Fax: (401) 788-2797

Visit: <http://promo.apcc.com>
*use the key code on the reverse
side*



Introducing APC's newest solutions for end-to-end network availability

Visit APC's Booth #4963 at Networld & Interop!

When the power fails, APC prevails.

Storms, blown fuses, backhoes... the causes of power problems are numerous, and the results painful; data loss and damage to your expensive hardware. When power fails, APC prevails with award-winning surge suppressors, battery backup, security enclosures, DC power equipment, cables and management software to deliver end-to-end reliability, guaranteed. So ask your favorite reseller about APC peace of mind or visit our Web site today for an APC solution for you!

Notebook Computers



- Notebook Battery cartridges backed by APC's legendary reliability.
- Complete AC, telephone/modem surge protection for notebooks.
- Cable management devices.

Solutions starting at \$19.99

Desktop PCs



- Surge protection or battery back-up for your computer and internet connection.
- Data-saving software provides warnings and safe shutdown.

Solutions starting at \$19.99

Servers



- Battery backup with Web/SNMP compatibility for tower and rack-mount servers.
- PowerChute[®] *plus* provides e-mail warnings, environmental monitoring and safe shutdown.
- Inventory Manager manages up to 10,000 APC UPSs.

Solutions starting at \$249.99

Networking



- Complete UPS protection for hubs, switches and routers.
- Managed enclosures for server platform and inter-networking equipment.
- Remote power management, reboot and diagnosis.
- Data, network and serial line protection.

Solutions starting at \$299.00

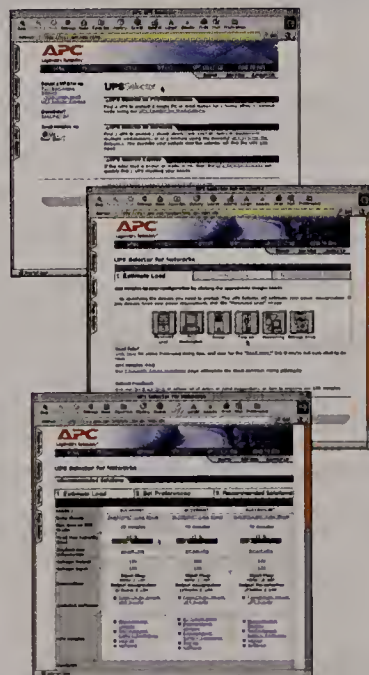
Enterprise



- Site-wide protection from 10kW to infinity.
- N+1 redundancy and scalability, modular expansion and reconfiguration.
- Innovative Delta Conversion On-line[™] 3-phase design means unmatched efficiency and low operating costs.

Solutions starting at \$3599.00

Configuring your solution is as easy as 1, 2, 3.
Go to www.apcc.com/sizing today!



NEW! DC Power solutions and cables.

Telecommunications/ISP



- DC Power Systems design and installation.
- DC rectifiers and power shelves and rectifiers, with advanced efficiency, power density and temperature range performance.
- Hot-plug, N+1 redundant.

Call for DC Solutions pricing

Cables and Switches



- Fiber optic, USB, FireWire and many more cables and extensions.
- KVM switches allow you to control several PCs or servers with one keyboard.

Cables starting at \$6.99

Switches starting at \$89.99



FREE APC UPS to the first 100 respondents.
All respondents will receive a Power Protection Handbook

Order now Key Code u943z
<http://promo.apcc.com>

888-289-APCC x6140 • FAX: 401-788-2797

APC
Legendary Reliability[™]



ples. One is the phone book, an incredibly complex array of data. Its form is not by chance, but through careful evolution. Designers have shaped every part of this device so that an incredibly broad group of users can pick it up, get the job done and get on with their lives. And its form is constant, whether you're in San Francisco or New York City. Another example is the London Underground map. It's a message that communicates for an incredibly broad audience. It was designed in 1933, but it

experience, you need to spend an awful lot of time understanding your audience.

Is it difficult to convince your clients of this?

Our problem, in many cases, is that the client kind of expects us to cook up an answer and come back. We demand that our clients participate so that, incrementally, they're involved. So when we create a diagram, we want the president of the company to draw on it and fax it back to us, and give us comments.

raphers, graphic designers and product designers. What's interesting is that no matter where they came from originally, they all have the same language, same beliefs, same process of shaping things.

Are the best designs invisible?

That's what design is supposed to be. A lot of people think design is supposed to be recognized. "Oh! Look at that! Isn't that neat! Look at that animation!" No, that's not neat. That's not part of the primary mes-

sage. The designer didn't do well; they satisfied their ego for the sake of visibility. We have clients who are asking us to look at things like their intranet because their user experience is not positive; designers are not doing their job effectively if

users can't use this thing. The programmers made all the decisions. They say, "It adds up the numbers accurately." Well, you need to do more than that.

JOHANNA HAMBROSE: If you can go in, perform your job and leave and get back to what you were doing, it doesn't matter what color the background is. If you have a bad experience, you'll never go back. You'll go to the competition. If you have a good experience and something is easy to use, you'll come back, despite what the logo looks like.

Is technology doing all it should in the modern world?

You know, we have a whole section of books on Shaker furniture in this office because the utility is so apparent, but also because it's so beautiful. These people had to plow fields, but they also had this spiritual need and a thousand other complicated social things going on in their culture that brought about these beautiful objects that are absolutely utilitarian in their nature. If you take that and you measure this stuff in this digital era, we're still way off. **CIO**

Senior Writer Meg Mitchell can be reached at mmitchell@cio.com.

“It's the success of **the exchange between human beings** and the software product that leads to the success of any venture.”

was a designer who took this very complicated array of information and found the most important messages that serve the human being.

And think about your car dashboard. Through collaboration between ergonomics and human factors you can tell things about the physical form of the human being who's going to sit behind the thing. That collaboration can tell us about a person's focus being a certain way. Then designers assign form, so that it not only helps us grip the wheel appropriately, but it adds some aesthetic value, something pleasurable to the experience. Then there are the technologists who are working on the engine and communicating all of this information to those other two teams for the end user.

How does information technology fit into this?

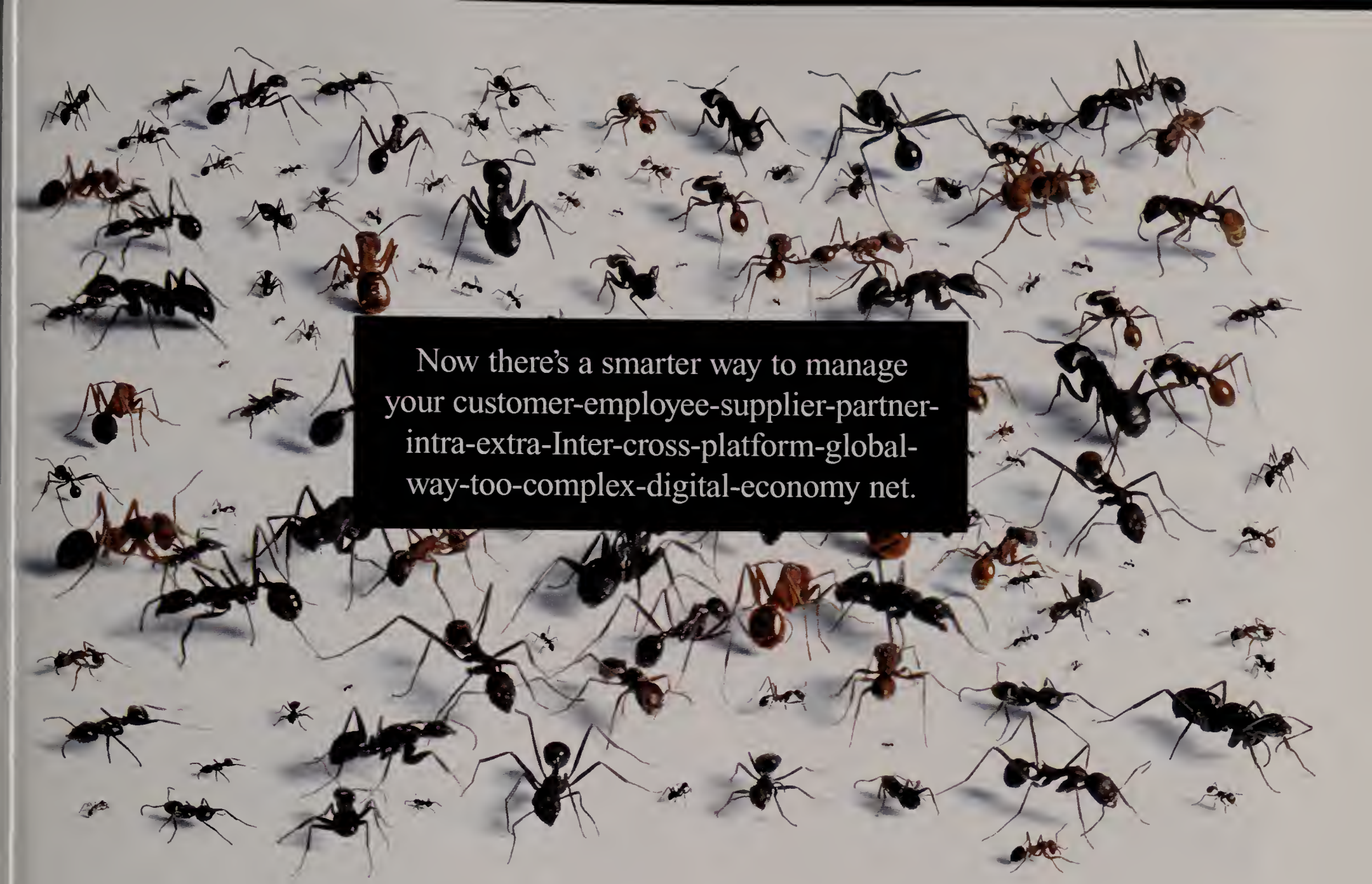
When we talk about technology issues, whether it's business-to-business or business-to-consumer, it's really about that experience, that communication, that energy of the organization. It's not the graphics or the logo—those contribute to it—but it's really the success of the exchange between human beings and the software product that leads to the success of any venture. And to shape that

Then, when the diagram is further resolved through iteration, we can start to take each of those moments in time—each of those displays—and crack it open even further with regard to what is actually going to happen on this screen. What are my choices here? What's the information that's going to be displayed here? What's the word we're actually going to put on these displays? And we present them as simply as possible so that our discussion with our client is still just about function and content; it's not about subjective colors or logos.

As these discussions evolve, we can then worry about colors, logos and identity situations.

How does the collaboration between the different groups help this process?

What's nice is that the technologist can make better decisions. Those opportunities don't happen unless the design and technology are together from the beginning of the exercise. So much time is saved by having these three groups—technologists, designers and human factor people—working at the same time from the beginning. There's never really a handoff and then going back to revisit. It's interesting to note that our design team has a lot of architects on it. We also have typog-



Now there's a smarter way to manage
your customer-employee-supplier-partner-
intra-extra-Inter-cross-platform-global-
way-too-complex-digital-economy net.



It's one Net. Put it to work.

You can't build success in today's eBusiness world if you can't bring order to a host of complex networks. Order that lets your employees, partners, suppliers and customers work together. And all their different operating systems, intranets, extranets and the Internet work as one Net. Securely and reliably. That's the strength of Novell's Net services software. It lets existing technology work together. And gives you the power to change your eBusiness as fast as the Net economy. Watch it work at www.novell.com

Novell.
the power to change

Smaller companies demand more and more from IT—often without providing additional resources for getting the work done. But life in the midmarket isn't all pain...

BY DEREK SLATER

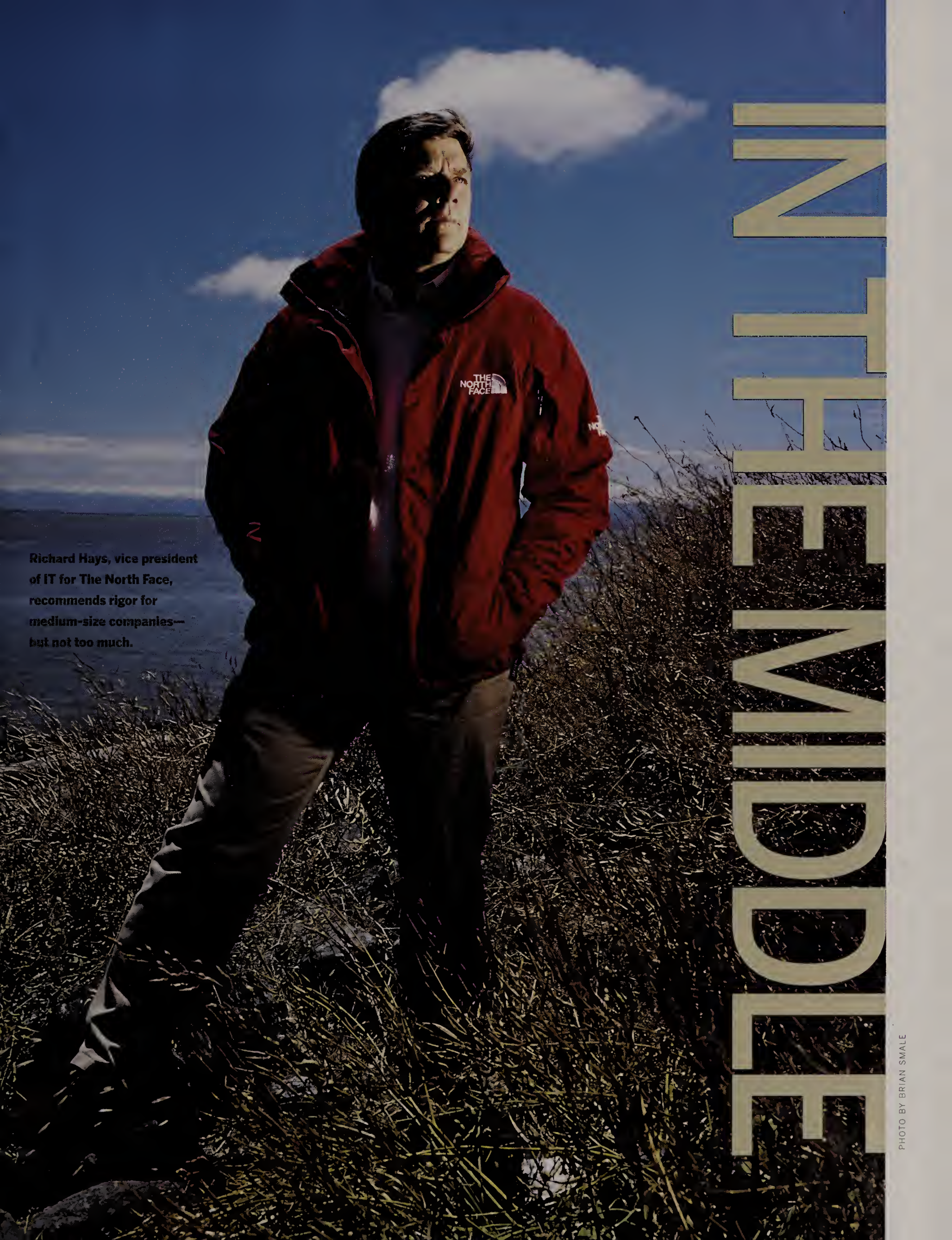
MARK LINDQUIST IS PRESIDENT OF A SMALL METALS FABRICATION company. Founded in 1926, Rapid-Line has 78 employees and churns out automotive parts and office furniture components in a single 46,000 square-foot facility in Grand Rapids, Mich. How rust belt can you get? Sounds like the kind of shop where IT capabilities might consist of Quickbooks running on a hand-me-down 486. ■ Surprise: Rapid-Line sells its contract manufacturing services based on its “flexible, technology-driven resource base and

modern information systems,” according to the company website (www.rapid-line.com). Must be a reference to Rapid-Line's enterprise resource planning (ERP) system and advanced planning and scheduling (APS) software

Reader ROI

- ▶ See why smaller companies need to strengthen IT's role
- ▶ Learn about strategies for coping with midmarket resource limitations
- ▶ Weigh the pros and cons of running a midsize company's IT shop





**Richard Hays, vice president
of IT for The North Face,
recommends rigor for
medium-size companies—
but not too much.**

THE MIDDLE

MARK LINDQUIST

Rapid-Line's president relies on IT to make the company a global competitor.



from Symix, Windows NT/Citrix servers, workflow/messaging system, three CAD packages, business intelligence software and extensive intranet. Each of the company's employees, from Lindquist to the newest shop-floor machinist, has Internet access and an e-mail address. Not too rusty at all, especially for a business that boasts a total of two full-time IS workers.

Why is Rapid-Line so wired? Lindquist

boils it down to that most basic motivator: pain. "We recently lost a job to a competitor in Hungary—supplying [parts] to another company here in Michigan," he recounts. The pervasiveness of the Internet means that even small companies like Lindquist's are suddenly up against competitors around the world—many of which, he says, don't carry the same overhead as U.S.-based companies that must comply with rigorous quality stan-

dards. Then tack on the trend for large customers to push assets, inventory and risk down their supply chains to suppliers like Rapid-Line. "The small manufacturer has no real choice; it's automate or die," says Lindquist.

Information technology is no longer the sole province of the corporate leviathan. Medium-size and even small companies, from silver-spoon startups to bootstrap-and-

Evolve connects services.

Evolve

connects people. Evolve

connects you

to all of the above.



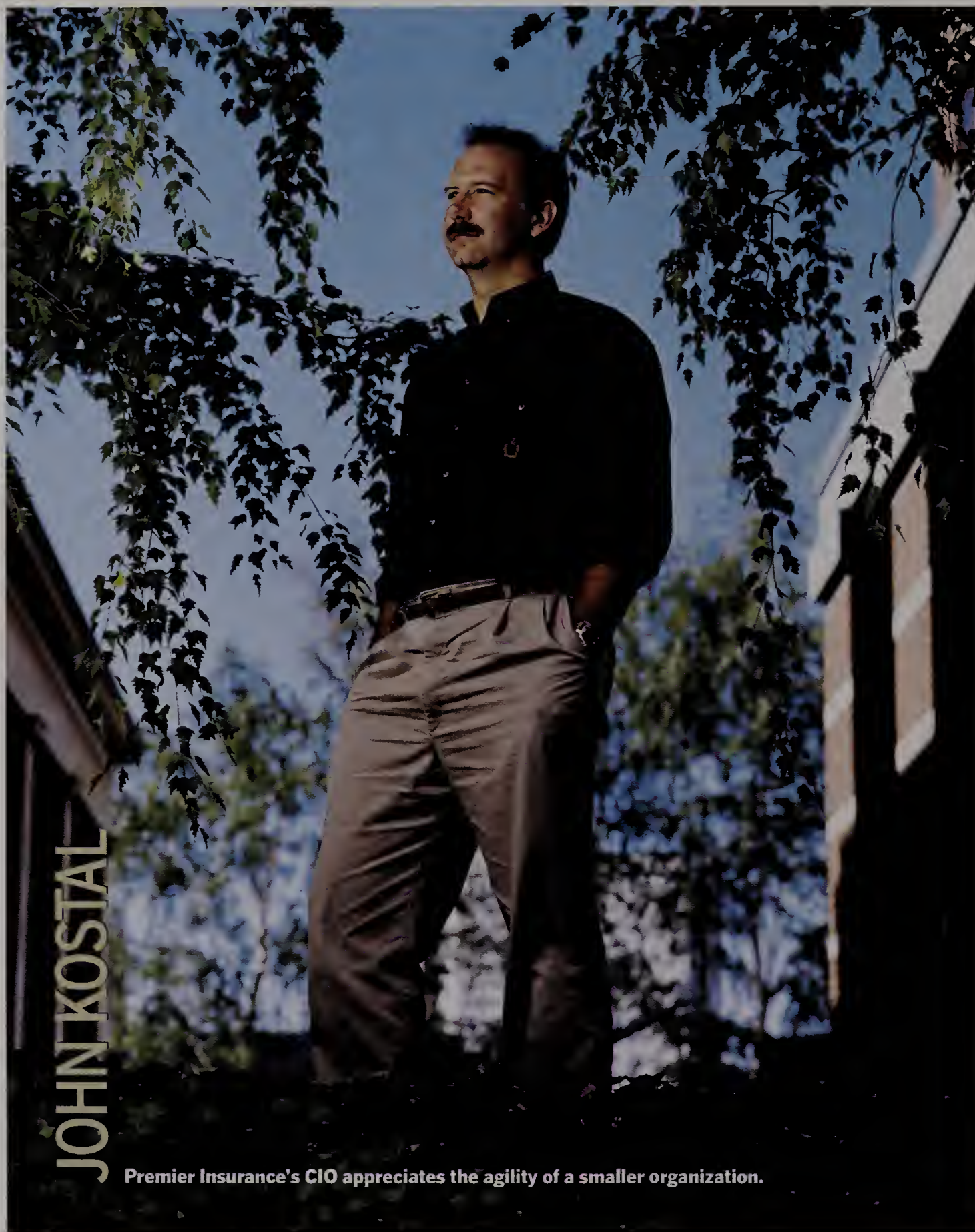
How
does the professional services
industry meet the challenges of the
new services economy? By *Connecting the
Service Chain™* with e-business solutions from
Evolve. With Evolve, leading-edge organizations like
yours become smarter. More adaptive. More efficient. And
because Evolve offers the only end-to-end Service Chain
solution, you're able to build teams more effectively, con-
necting the right people with the right knowledge to the right
projects, every time. All of which leads to improved deployment
of resources. Streamlined operations. Greater employee and
customer satisfaction. And perhaps most importantly,
maximized profitability and continued long term success.

Get the solution that's already the choice of leading
professional services organizations by connecting
to www.evolve.com, or calling (888) 2-EVOLVE.

Because in this evolving, services-dominated
world, it pays to be connected.

Evolve. Connect. Thrive.™





JOHN KOSTAL Premier Insurance's CIO appreciates the agility of a smaller organization.

each company's definition of the term seems to differ. As a general rule, those software providers define small and medium-size businesses as running up to \$200 million or \$250 million in revenue. Janie Tremlett, a former midmarket CIO-for-hire who now directs a rent-a-CIO service at consultancy Breakaway Solutions, extends the upper limit of the midmarket to \$1 billion. However, there's more to it than mere size. Some very small companies have extremely complex IT requirements akin to those at larger enterprises—think, for instance, of capital management boutiques that track the stock market and portfolio values in real-time with all the attendant calculation and communication. And, of course, today's dotcoms build their e-commerce infrastructures from Day 1 in anticipation of hyper-growth of page views and transactions.

From the CIO's chair, what defines a midmarket company is more a question of resources. Big IT operations have the money and man power to experiment a bit with new tech-

elbow-grease centenarians, are increasingly dependent on IT to keep them efficient and competitive. Folks who head up IS at mid-market companies, whether they carry the CIO or some other title, frequently find themselves struggling to balance the rising demands for strategic systems quickly implemented against the need for appropriate doses of foresight, planning and rigor. Higher expectations don't necessarily go

hand in glove with additional resources. It's an exciting—or perhaps enervating—time to lead a midsize IS function.

RISK AND RIGOR

WHAT EXACTLY IS THE MIDMARKET? ERP VENDORS brought the importance of IT in these companies into the spotlight when SAP, PeopleSoft and others announced plans to target the midmarket for future sales—but

nologies and to absorb the occasional project failure, and the CIO can usually separate herself from daily operational issues enough to do some strategic thinking. That's a luxury that becomes more and more rare as you move down the size spectrum.

Sounds like life in the midmarket means long days and fast burnouts. However, veterans who have worked in companies both large and small say it ain't all bad—not by

AT iBEAM,

IBM NETFINITY

SERVERS

ARE STREAMING

MAGIC.

IBM

COMPANY: iBEAM

WHO? iBEAM. The high-fidelity streaming media network

CUSTOMERS: MTVi, AOL, NetRadio

SERVERS: IBM Netfinity® 6000R rackable servers

SPECS: Up to 4-way Intel® Pentium® III Xeon™ processors 800 MHz*
and 16GB Chipkill™ Memory with 218GB† maximum internal storage

WHY IBM? Minimizes packet loss, delays and hiccups

BUY IT: \$8,162* at ibm.com/netfinity/ibeam (IBM Server Start Up Support included)

IBM Netfinity® business servers. Technology. Innovation. Magic.



*MHz denotes internal clock speed of the microprocessor only, not application performance; many other factors affect application performance. †When referring to memory or hard disk drive capacity, GB means one billion bytes. Total user accessible capacity may vary depending on operating environments. *Price of Netfinity 6000R model 86821RY with open bay is based on estimated reseller price as of 05/23/00 and does not include hard drive, operating systems or other options. Actual reseller price may vary. Prices, specifications and availability may change without notice. IBM, the e-business logo, Netfinity and Chipkill are trademarks or registered trademarks of International Business Machines Corporation. Intel, the Intel Inside logo and Pentium are registered trademarks and Xeon is a trademark of Intel Corporation. Other company, product and service names may be trademarks or service marks of others. ©2000 IBM Corp. All rights reserved.

any means. The beauty of midmarket life includes a greater sense of empowerment and the ability to decide, plan and execute quickly. And streamlined decision making might make a nice change of pace for CIOs accustomed to big-company life. At a smaller organization, "the number of people you have to get into a room to decide what to do is much smaller," says CIO John Kostal, who spent a decade at Travelers Insurance before moving to head up IT at the company's Massachusetts auto insurance spinoff, Premier Insurance. Compare that to the Fortune 100 experience, of which Tremlett says, "I can't bear to recall all the meetings I sat through with the flip charts, the PowerPoint slides and the business sponsor begging for funding [for a proposed IT project]—almost like a courtroom scene."

In fact, midmarket companies are frequently guilty of failure to apply enough rigor to the process of analyzing options and choices. Decisions can be made so quickly that they lack some of the foresight that would save pain down the road. David Reid is the director of information technology for Fazoli's Restaurants, a 370-location chain based in Lexington, Ky. "We have a couple of pretty sharp guys in our IT group who have made some great systems, but those systems were never made to talk to each other," he says. "We've put in interfaces, and it works pretty well, but it's a pain to maintain." With a bit more planning time such systems could have been designed from the ground up to share data. This is a common cry from small company IT operations that often say they just aren't afforded the time to proceed with caution.

Richard Hays, vice president of IT for apparel manufacturer The North Face, agrees that a lack of rigorous decision making is one of the characteristic corporate habits that CIOs in midmarket operations must wrestle with. Hays came to The North Face (revenue: \$250 million) from Columbia Sportswear (revenue: roughly \$500 million). The North Face, headquartered in San

Leandro, Calif., was acquired this year by Greensboro, N.C.-based giant VF Corp. but maintains its own IT operations. Hays says that in his experience, documentation of processes, policies and decisions is rare in smaller operations. "In larger companies you have glossaries, data dictionaries and so on, whereas in a smaller company it's more like tribal history," he says. On his arrival at The North Face, Hays instituted the use of seven standard documents to bring some consistency to project and change management

game to define requirements, provide training, monitor results and deliver benefits.

Lastly, choosing software and hardware vendors is a thorny issue. Service and support become an even more critical part of the selection process than it is for larger companies. Small players tend to select from a completely different list than do their larger counterparts. In financial and ERP software, for example, the little fish tend to name providers like Macola Software, Great Plains and Solomon. Those packages offer quite

"The CEO basically said, 'Build the best IT environment you can, but don't buy anything and don't hire anyone.'" —JOHN KOSTAL, CIO, PREMIER INSURANCE

(see "Disciplined Decisions," Page 172). The challenge, he says, is to bring the appropriate level of discipline to a growing IS organization without inducing paralysis.

RESOURCE CRUNCH

REGARDLESS OF HOW TIGHTFISTED OR LOOSE with the reins, once the work begins, CIOs at midmarket companies usually feel more acutely strapped for staff than their kin at larger organizations. This has several effects.

First, it makes for a lot more hands-on work for the CIO. "The person managing IT at a smaller company has to wear more hats, more often," says Michael Dortch, a senior research analyst for the market analysis company The Robert Frances Group, based in Westport, Conn. For that matter, everyone in the IS department typically handles many responsibilities. Specialization is rare in smaller companies.

Next, CIOs need to get creative to staff significant IT projects. The most common tactic: Business-line employees become application owners. IS supports rollouts and makes networks work, but the business has to put a considerable amount of skin in the

a bit less functionality than SAP's R/3—and for a small IT operation that doesn't have time to fiddle with endless function tables, that's a good thing. Midmarket users commonly move up a tier or two from those small vendors, according to The North Face's Hays, but still report some reluctance to sign on with the big guys. Second-tier providers, he says, are frequently hungrier for success and more flexible in responding to customer needs. The North Face selected an ERP software package called Movacs from Swedish vendor Intenia—against the recommendation of their Big Five consultants, who were recommending Baan or J.D. Edwards. "You can always go with a big name for the credibility, but it may be hard to get your sales rep's attention when you're calling on line 1 and their Fortune 5 customer is on line 2," says Dortch.

Naturally, with fewer resources, just financing this kind of IT expenditure can be taxing; instead of just writing a check, small companies sometimes have to be creative in their financing efforts. Rapid-Line, the small metals fab in Michigan, took an industrial

WINDOWS 2000 MAGIC.

The IBM logo, consisting of eight horizontal stripes of varying lengths, is positioned on the right side of the advertisement. The background of the entire advertisement is a dark, high-contrast photograph of a server room. In the center, a large server rack is visible, with the 'Netfinity' logo and a small 'e-business' logo on its front panel. To the left, a person is partially visible, looking at a document. To the right, another person is seen from the side, looking towards the server rack. The overall atmosphere is professional and technological.

COMBO: Microsoft® Windows® 2000 Server on IBM Netfinity® servers
EVALUATION: Phenomenal scalability and superior reliability
ADVANTAGE: Advanced technologies — Chipkill™ Memory, Active™ PCI,
Light Path Diagnostics™*
EXTRAS: Netfinity Director,™ Web Server Accelerator (optional)
WHY IBM: Enterprise-class performance with industry standard technology
BUY IT: ibm.com/netfinity/win2000

IBM Netfinity  business servers. Technology. Innovation. Magic.

*Available on select models. See www.pc.ibm.com/us/netfinity for details. IBM, Active PCI, Chipkill, the e-business logo, Light Path Diagnostics, Netfinity and Netfinity Director are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States, other countries, or both. Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corporation in the United States, other countries, or both. © 2000 IBM Corporation. All rights reserved.



revenue bond of \$3 million, about \$120,000 of which was used to finance its purchase of ERP and APS modules from Symix, among other equipment upgrades. While the company doesn't cite a hard-dollar return figure for the investment, it does have some impressive stats to show; its percentage of projected late orders, for example, dropped from a frightening 90 percent down to less than 5 percent, and Rapid-Line has cut lead time on the shop floor by more than half. "Our big customers are mainly interested in a handful of things: reliability, speed to market and cost," Lindquist says. Rapid-Line has benchmarked its own operations against others for roughly a decade. "A more current and more automated asset base is a characteristic associated with more

profitable concerns," he notes, so the company bit the proverbial bullet on cost for the new systems.

The cost of IT and the lack of resources give application hosting huge appeal. When Travelers Insurance created its separately capitalized subsidiary, Premier Insurance, to handle its operations in the difficult Massachusetts auto insurance market (a state where seemingly everyone has a bad back from some bygone fender bender), Kostal's job came with a CEO edict for creating a low-cost IT service infrastructure. "He basically said, 'Build the best IT environment you can, but don't buy anything and don't hire anyone,'" Kostal says. A cornerstone of Kostal's solution was a contract, paid on a per-policy basis, for vendor CGI to handle Premier's policy processing.

(CGI is a Montreal-based company that acquired the original holder of Premier's processing contract.) The per-policy pricing meant that IT costs would fluctuate in accordance with the state of the business, whether it flourished or floundered.

FIGHT OR FLIGHT

ALL THIS IS NOT TO SAY THAT EVERY MIDMARKET business regards IT as mission-critical. "There's a constant drive on our part [to raise awareness of IT's capabilities]," says Reid of Fazoli's. "The folks here recognize that IT is important, but we struggle with 'how important.'" Companies that are growing in size, or simply face constantly increasing competition, go through a natural progression, says Reid, who has worked for a number of companies going through those growing pains. What starts out as "a couple of computer guys" turns into an IS department, and these days an organization that needs an IS department likely needs that department's leader to help craft the company's strategic direction.

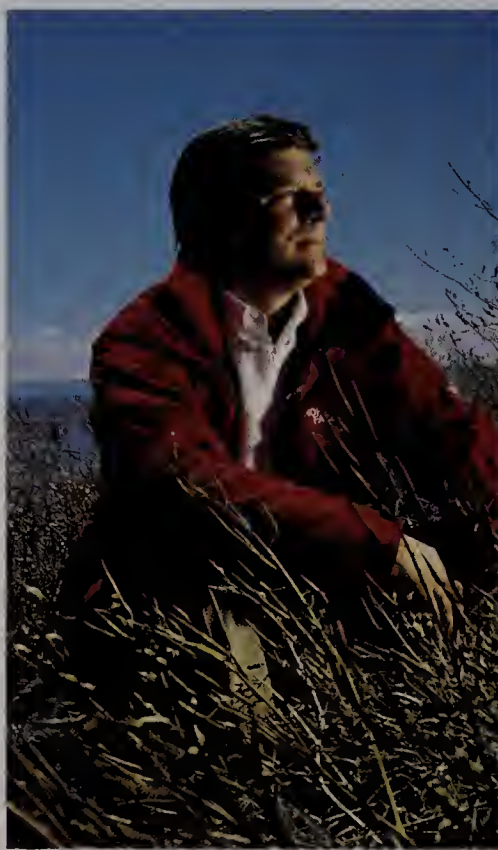
What to do for the IS directors at companies that don't eventually buy into IT's strategic importance? Everyone is free to beat their heads against the wall as long as they like, of course, but the most common word of advice is this: quit. For starters, executive resistance is a surefire recipe for frustration for the CIO who is constantly shoveling water uphill, trying to persuade top management that good information—which comes only from good information systems—really matters. Furthermore, with very few exceptions, it's also a sign of a company headed for trouble. "It hearkens back to the days when IS managers were jumping on the PC and local area network bandwagon," says analyst Dortch. "Some [executives] continued to dismiss those technologies as being inadequate for corporate needs. I would suggest that those people were part of the evolutionary fallout." **CIO**

Does your midmarket management get it? Share your experiences with Executive Editor Derek Slater at dslater@cio.com.

DECISIONS

DISCIPLINED

Upon his January 2000 arrival as vice president of information technology at The North Face, Richard Hays instituted seven methodologies to bring some discipline to the company's IT projects. "You must not go overboard; this is about as much rigor as an organization our size needs," he says. The North Face's lucky seven are standardized documents that help create a structure for evaluating and implementing projects. Sometimes they're four pages long, sometimes 20, depending on the nature and complexity of the proposed project, Hays says.



1. **BUSINESS REQUIREMENTS** A statement of what the business needs from IT
2. **BUSINESS CASE DOCUMENT** A justification for the money to be spent. Concrete return-on-investment figures if the company can pin them down.
3. **CONCEPTUAL DESIGN DOCUMENT** A functional specification
4. **TECHNICAL DESIGN DOCUMENT** A programming spec
5. **TEST SCRIPTS AND DOCUMENTATION** Includes step-by-step tests for both the programmers and the business-side personnel to make sure the application works and that people can use it
6. **BUSINESS IMPLEMENTATION PLAN** When the project will go live, when end user training will occur and so on
7. **TECHNICAL IMPLEMENTATION PLAN**

Want your e-business to live a long, prosperous life?

Start by building your business around a strong information storage infrastructure from EMC.

In other words, make sure your information lives.



You'll be able to work across platforms, grow without limits and protect all your company's data. You'll be able to move quickly, driving new products and features into the marketplace months ahead of the next guy.

You'll be what's referred to as EMC Proven.™

Which means you'll be able to slap our handsome EMC Proven logo all over your business.

That way your customers will know you plan to stick around.

Here today,
here **tomorrow.com**

Go where successful businesses have gone before you.

www.EMC.com/ebusiness

EMC²
where information lives

EMC, EMC², where information lives, EMC Proven are trademarks of EMC Corporation. ©2000 EMC Corporation. All rights reserved.



Despite the holiday deadline, Mail Boxes Etc. CIO Raymond Causey is optimistic about CRM success.

Raymond S. Causey started dreaming about this Christmas during the summer of 1999. Causey isn't a 10-year-old boy with a burning desire for a model train or a pony. In fact, he's the father of three young boys who themselves probably won't even start thinking about Christmas until Thanksgiving.

BY STEWART DECK

CRUNCH TIME

With a firm deadline staring it down, Mail Boxes Etc. is scrambling to get its CRM in place

Reader ROI

- ▶ Gain insight into the early planning stages of a CRM project
- ▶ Prioritize the practical considerations for long-term CRM results
- ▶ See how one business is planning an internal reconfiguration using CRM

As the vice president of technology and CIO of Mail Boxes Etc. (MBE), Causey began thinking about how a new system would come together during this year's holiday season. During that summer, San Diego-based MBE began rolling out the first phase of a \$10 million technology program that would link its 3,400 U.S. franchises for the first time using a Very Small Aperture Terminal (VSAT) satellite communications system. This virtual, private network would provide individual

stores with high-speed communications and Internet connectivity, and give the company a central viewpoint of transaction data. What really gave Causey and other MBE executives visions of sugarplums was the realization that this was the foundation on which they could build a system to change the way their business operated.

Just getting the network and data-collection elements in place would take close to a year, so Causey began planning for their busiest season. If MBE's IT and marketing departments focused on the project, they could get enough technology in place to collect and organize the avalanche of data they would receive during the Christmas mailing crunch. Careful analysis of this data would help MBE establish a worldwide customer relationship management (CRM) program.

"Our business revolves around large numbers," Causey says. "We have 4,200 Mail Boxes Etc. locations worldwide and more than 240 million customer contacts per year. And yet we realized we didn't have a good idea who our customers were, so we began looking at how we could best use this new network to gain better collective insights."

Causey and his marketing cohorts quickly realized they would be collecting and storing not just transaction data but customer-level data as well. They knew if they worked quickly, they could determine who their customers were, how they interacted with the business and what they wanted. With this information in hand, MBE could change the way it did business.

"It's an overall business strategy issue, not just a technology issue, because our goal is to use this to become customer-centric," says Daren Hildebrand, executive director of strategic marketing at MBE. The goal of implementing a new CRM system, she says, isn't just reviewing data and developing processes but supporting a philosophical business overhaul. Implementing a CRM plan will help the company change everything—from the way it markets its services to the way it supports each franchise.

This may sound a bit too wide-eyed and hope-

ful, but that's the way such an undertaking should be approached. Bringing in small pieces of a CRM system to learn more about customer behavior and tweak direct-mailing results is often a waste of effort and money. "Too many companies think CRM is a point solution to solve today's pain," says Peggy Menconi, research director for CRM at Boston-based AMR Research. "But that's tragically short-sighted. Viewing customer relationships as a totality and CRM as an entire change of strategic thinking is key to a successful project."

Building Blocks

MBE began this project with a well-focused plan and the proper business mind-set, but Causey, Hildebrand and Senior Vice President of Marketing Kurt Schusterman knew there was a



"OUR NO. 1 STRATEGIC MISSION IS TO DEVELOP CUSTOMER INTIMACY."

—Daren Hildebrand, executive director of strategic marketing

We Deliver

The RAS in .com

Reliability, Availability, Scalability



DMR

An Amdahl Company



AMDAHL[®]

www.amdahl.com

© 1999 Amdahl Corporation. All rights reserved.

“RETENTION ISN'T THE SELLING POINT TO FRANCHISEES. WHAT RESONATES WITH THEM IS NEW REVENUE GENERATION.”

—Kurt Schusterman, senior vice president of marketing



larger hurdle to clear before everything would come together: convincing the franchises and the franchise owners. Because MBE is organized as a collection of franchises, large-scale decisions like implementing new systems and refocusing business procedures need acceptance from the franchise owners or they won't even get off the ground.

In a more typical corporate setting, selling the idea of a CRM project comes down to two golden words: customer retention. When the IT staff starts passing around graphs showing how CRM improves customer retention, contracts are signed and deals are sealed. However, telling franchise owners they need to help pay for a system to keep more customers coming back isn't a very sexy sales tactic. “Retention isn't the selling point to franchisees,” Schusterman says. “What resonates with them is new revenue generation.”

Causey agrees with Schusterman on the franchisees' per-

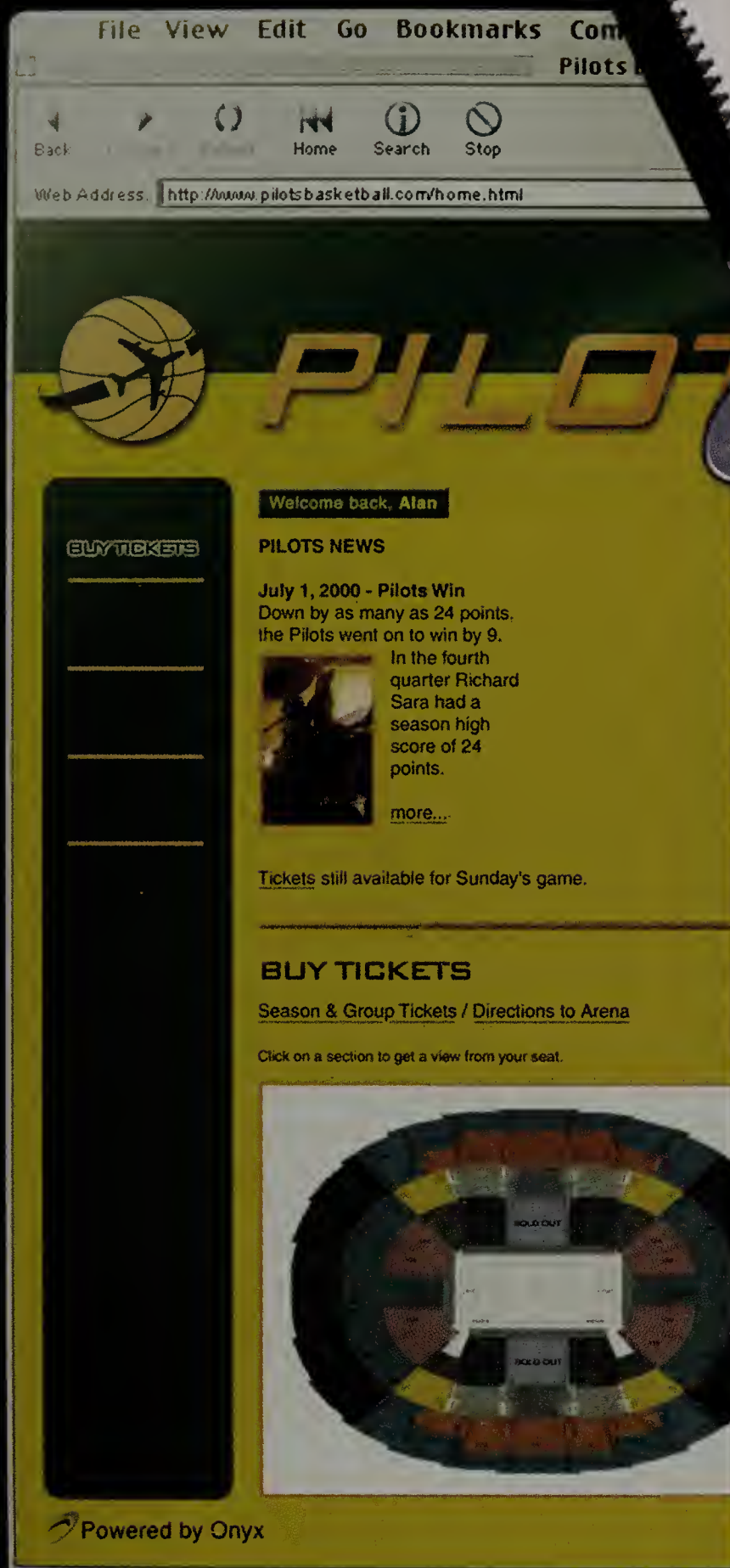
spective. “Yes, they're less likely to accept the warm and fuzzy value of customer retention as bringing them any sort of value,” he says. “So we have had to come up with a business model that would drive revenue directly into each [franchise] center so that the owner would say, ‘Oh, I see. If I spend \$200, I'll make X dollars per month in return because of business I can now do based on the new technology.’”

Causey and Schusterman started with the idea of building a small data warehousing project—the building blocks of a larger CRM program. That concept was in place from the planning stages of the VSAT satellite network even before Causey and Schusterman joined MBE, but it was viewed only as a concept that could benefit the company in some vague way. They brought the idea into sharper focus. The data collection pieces are in place. Transaction data is collected by an online transaction processing engine and filed in a Microsoft SQL Server 7.0 database running on IBM Netfinity servers. The table schema to sort both the demographic and individual transaction data is in place as well.

From this configuration, MBE can start to learn more about its customer base. The company can then offer franchisees new products and marketing services to fit these demographics and bring in new customers, bring back existing customers and generate more revenue. Then, Causey says, “we'll be able to say to franchisees, ‘Here's what we can do for you with just basic transaction and demographic information. Now let us tell you about our bigger CRM plans.’”

At the same time they're selling the CRM concept to franchisees, Causey, Schusterman and Hildebrand will be demonstrating the possibilities of the data they're collecting while talking to, listening to and sitting down with their own business analysts to better understand what specific types of data will be most useful for analysis purposes. “The first six to 10 months of this project will be spent collecting data, gathering information from our user community and from the [franchise] centers themselves, and evangelizing what a customer-centric focus can mean,” explains Causey. “Then we'll put some meat on the bones of all this data and start showing some prototypes of interesting findings and statistical groupings of what we have collected so far.”

Then comes the tricky part: taking the suggestions and ideas from their business division analysts and determining how to capture the data necessary to fulfill those suggestions. For example, if the operations department analysts decide they could significantly benefit from studying demographic product affinity data, Causey's team would have to develop a process for capturing that information.



BRING THE WORLDS OF E-BUSINESS AND BUSINESS TOGETHER.

Let's face facts. In today's "ever changing, gotta have it, move at the speed of the Internet world," it's no longer business as usual. Companies everywhere are racing to find the right combination of bricks and clicks. Which is exactly why you need a company that understands both. You need someone like Onyx. We provide an enterprise-wide solution for sales, marketing and customer service that connects your entire world of employees, customers and partners. It's a seamlessly integrated solution that's accessible through multiple interfaces. From PDAs to Web-enabled phones to desktops. To find out more, just visit our Web site at www.onyx.com or call 1-888-ASK-ONYX.



Planning to Plan

For a CRM project to have true benefit, it has to dig beneath the topsoil of customer names, addresses, phone numbers and transaction histories. Lynne Harvey, senior analyst at the Patricia Seybold Group in Boston, says it's more than just call-log histories and marketing demographics. "Information such as product affinity model data, site product registration information, customer service history, transactional history, interactive survey data and data from interactive online personalization tools are also key [to successful CRM implementations]."

Another critical factor is taking the time to carefully map out processes and strategic planning before putting too much technology in place. Causey recognizes this and has tried to hold off on making too many technology purchases until some of this is sorted out, but with Christmas just a couple of pages away on the calendar, he also knows he can't wait too long. If enough data collection processes are established in time to

"Starting to build the system first and then doing a strategic overlay is reality, but in a perfect world I would have liked it another way. But really, it's not mission-critical, and we'll do fine."

If he had the chance to start this project over, Causey agrees he would start evangelizing the idea sooner and educating divisions and departments about the scope of the project and what it could do for them. Doing so may have accelerated buy-in from other divisions. "But frankly," he says, "there was nobody here with the knowledge to launch those processes when it all began."

When they look farther down the road, Schusterman, Causey and Hildebrand almost turn giddy at the possibilities facing them. "Our No. 1 strategic mission is to develop customer intimacy," says Hildebrand, "which for us means designing processes and systems so that customers don't have to do the same things twice."

Schusterman foresees opportunities to start fitting customers into categories of similar segmented characteristics. "We'll be able to see what patterns they fit and how we can segment them. Then our [business analysts] can mine customer segment data and put together products, services and advertising that will resonate with those particular segments," he says.

"If you are trying to build sustainable relationships with your customers, you need to go beyond the practice of using customer data to segment your customer base and providing personalized offers to these groupings of customers," says analyst Harvey. "You

need to be able to show the customer that you recognize and value each of them, and let the customer tell you what she wants, what she needs and how she should get it."

That's just what Mail Boxes Etc. has in mind for the long haul. "It won't happen overnight," says Schusterman, "but we're trying to keep our long-range goals in mind. We're completely shifting the business's focus from products to customers."

"We're fortunate in that we aren't doing this out of some kind of desperation," adds Causey. "We've been growing well over the last several years, so we're not counting on CRM to save us—even though we're pushing to have some significant pieces of this in place before Christmas." Having these pieces in place could send Causey off dreaming again—this time of Christmas 2001. **CIO**

Stewart Deck wouldn't mind getting a model train for Christmas this year or reading about your own long-range projects. E-mail him at sdeck@cio.com.

"WE'RE COMPLETELY SHIFTING
THE BUSINESS'S FOCUS FROM PRODUCTS
TO CUSTOMERS."

—Kurt Schusterman

gather the torrent of transactions and other data that comes during its busiest mailing season, then MBE will have a rich storehouse of customer and sales information to sort through. If it doesn't make this deadline, to gather an equal amount of data will take months at the normal rate MBE does business, a mere trickle compared to Christmastime.

"The theoretical academic view would have us put the company on hold for a year to define each process, implement procedures and come back and start working under a new set of rules," Causey says. "But if that was ever possible, it certainly isn't in the Internet Age because things are happening way too fast. Those process management methodologies to implement these kinds of projects sound nice, but it sure wouldn't work in today's atmosphere."

Schusterman acknowledges he would have preferred more time for strategic planning as well. "I would like to have the full-blown strategic plan all laid out with timetables and all that before we start doing anything else, but we don't have that luxury because we're moving so quickly on this," he says.



mpulse

No one has ever run a successful business by being uninformed. In fact, making critical decisions based solely on impulse wastes time, resources and effort. With Information Builders' business intelligence and integration software solutions your decisions can be based on something far more valuable—pertinent information that is available on demand to employees, customers and partners—everyone who impacts your success. That's the power of i-business, it puts the intelligence in e-business and provides companies like Merrill Lynch, General Motors and Sony with an intelligent real time view of their overall business. Only Information Builders offers that kind of knowledge. So you can seize the moment, act intelligently and perform like never before.

i-business changes everything

**Information
Builders®**

www.informationbuilders.com/i-business
1.800.969.INFO

©2000 Information Builders, Inc. All trademarks, registered marks and service marks are the property of their respective owners. All rights reserved.

BY LAUREN GIBBONS PAUL

The wine industry's discerning use of homegrown IT systems has produced some bountiful results

Winemaking is not your ordinary manufacturing industry. After all, wine has been gladdening the hearts of men (and women) since at least Biblical times. But winemaking does not lend itself to a formula that can be repeated with a consistent outcome. Winemakers must respect the ever-changing conditions of the terroir, or terrain—the grapes, the soil and the sun, which combine with the simple passage of time to create the precious nectar.

“We don’t want to produce something. We want to create something. Winemaking is an art,” says **Rita Graham**, director of IT for Delicato Family Vineyards,

Reader ROI

- ▶ Learn how the wine industry is revolutionizing its operations and strategy using IT
- ▶ See the value of custom-developing systems where packaged applications fall short
- ▶ Understand why the wine industry lags behind on e-commerce

Fruit of



the Vine



WINE INDUSTRY FAST FACTS

- Number of U.S. wineries: **1,600—847** are located in California (Wine Institute)
- Estimated retail value of total wine sales in the United States in 1999: **\$18.1 billion** (Wine Institute)
- U.S. wine exports in 1999 were worth about **\$548 million**, a 2% increase from 1998. (Wine Institute)
- Male consumers account for **54%** of all wine consumption. White, blush and dessert wines had higher female consumption than average. (NFO Research)
- Consumers over age 60 account for **26%** of all wine consumption, with the same proportion coming from consumers between 50 and 59. Consumers between 40 and 49 account for **24%** of all wine consumption. Twentysomethings account for only **8%** of all wine consumption. (NFO Research)
- **55%** of wine volume is consumed by those with household incomes of at least \$60,000. Just **10%** of all wine is consumed by those earning less than \$15,000 per year. (NFO Research)

the eighth largest U.S. wine producer, in Manteca, Calif. The process of making wine is inherently as low-tech as can be, requiring only a source of grapes, some paddles (or even feet) to crush the grapes, barrels to store it in and—eventually—bottles. It seems a bit rude for technology to intrude on this hallowed practice.

Over the past several decades, science has advanced on the noble art of winemaking. Winemakers resisted the move at first, preferring to follow tradition rather than innovate. But soon most wineries of all sizes began using basic automation technology to aid in production—first to automate the crushing and bottling processes and then to track the movement of the grapes from harvest through bottling. Today wineries on the leading edge employ everything from global positioning system (GPS) technology to map the vineyard for soil and grape types, to drip irrigation control systems to measure ground moisture levels, to membrane presses that crush the grapes extra gently to protect their delicate flavor.

Wineries began to invest heavily in IT after a recession in the early 1990s, says Rich Cartiere, publisher of the *Wine Market Report*, a wine industry newsletter in Calistoga, Calif. “Each product made by each winery is incredibly complex and diverse. There are so many different variables—how long to toast the oak barrels [in which the



“We’re not like a normal manufacturing business that can use a mostly off-the-shelf ERP program.”

—Rita Graham, director of IT, Delicato Family Vineyards

wine is stored]? What’s the impact of stirring the wine once a month versus twice a month? There’s an incredible need to track this information,” says Cartiere. The need to track data also stems from strict state laws regarding the production and sale of alcohol. The laws that govern vintners in California are typical of most other wine-growing states, and the Golden State is by far the biggest producer of wine in the United States. Wineries are required to trace everything from the sugar content of the grapes right down to the heritage of the grapes that contribute to each bottle of wine.

In recent boom years, the demand for high-premium (over \$7 per bottle) and ultra-premium (over \$15 per bottle) wines has skyrocketed, leading to increased opportunities for wineries. And B2C e-commerce wine sites pose high-tech retailing challenges for this ancient industry (see “WineBattle.com,” Page 196).

Though it remains small compared with other industries—total U.S. retail wine sales in 1999 were \$18.1 billion—the wine business requires more creativity and project management expertise of its IT executives than most industries. (Industry measurements for wineries are not related to revenues but to the amount of cases a winery produces each year. For example, a large winery produces more than 100,000 cases per year, midsize between 25,000 and 100,000, and small under 25,000.) Off-the-shelf packages don’t fit wineries’ unique needs, and few vendors offer specifically tailored solutions. Therefore, most wineries must develop their own software, ranging from homegrown enterprise resource planning (ERP) packages to production-planning and line-bottling systems.

Although the wine industry prizes its IT executives for their ingenuity, it is rare to find an IT executive with the prestigious title of



Booth #6917
NetWorld + Interop



Infinite Possibilities. Younique Solutions.SM

Your challenge is to turn possibilities into profits. But your success depends on being able to exchange information with your customers — reliably, securely, safely. Who can make it happen? You can — when you bank on SAVVIS. You need an IP network that's always on, 24x7. And SAVVIS delivers, enabling you to launch new applications with complete confidence. In fact, 75 of the top 100 worldwide banks and 45 of the top 50 brokerage firms trust the SAVVIS network. So should you.

Intelligent IP Networking for Dynamic CompaniesSM



www.savvis.net/reliable

1-866-4SAVVIS



“The ERP system wants us to identify the process from the beginning and then let it go. But we need to have a human winemaker involved in every step of the way.”

—Denise Horne, director of IT, Kendall-Jackson

CIO. This signals the industry’s fairly recent adoption of IT as a strategic resource rather than a lack of respect for technology’s ability to provide competitive advantage. As you’ll see, wineries of all shapes and sizes are putting technology to work in a number of creative—dare one say artistic—ways.

Wine Area Networks

All wineries need a system—whether rudimentary or sophisticated—to track for regulatory purposes the receipt and movement of grapes throughout the production process. This is called the bulk

wine system. In addition to storing information about the vineyard heritage of the grapes that go into each bottle of wine, wineries must keep elaborate documentation proving that a bottle of cabernet sauvignon, for example, contains wine made from at least 75 percent cabernet grapes (for definitions on wine types, see “Wine Defined,” Page 194). If the bottle is labeled as being from the Napa Valley, the winery must keep data proving that at least 80 percent of the grapes in the bottle originated in that region. Small wineries may perform this data collection task by hand, taking notes and

inputting the data into an Excel spreadsheet, for example. Although a few vendors (Gulson and Associates in Glen Ellen, Calif., is the best known) offer industry-specific systems, most larger wineries resort to developing their own bulk-wine systems.

Packaged ERP systems fall far short of the capabilities needed in a bulk-wine system. “We do have to do a lot of our own programming. The requirements are pretty stringent. We’re not like a normal manufacturing business” that can use a mostly off-the-shelf ERP program, says Delicato’s Graham. For one thing, ERP packages such

Booth #6917
NetWorld + Interop

Infinite Possibilities. **You**unique Solutions.SM

You need to cultivate raw possibilities into real business productivity. But your success depends on creating just the right conditions for your ideas to grow. Who can make it happen? You can — with the help of SAVVIS. Just go on-net with SAVVIS, and you can build an affordable custom network in as few as 15 days. You choose the parameters, bandwidth and QoS levels you desire — and watch your business thrive. Reap the fruit of your labors today with the SAVVIS networking solutions of tomorrow.

Intelligent IP Networking for Dynamic CompaniesSM



www.savvis.net/golden

1-866-4SAVVIS

as SAP's R/3 are not flexible enough to allow human intervention during processing, a necessary part of winemaking.

"The ERP system wants us to identify the process from the beginning and then let it go. But we need to have a human winemaker involved every step of the way," making blending decisions based on the types of grapes available and adjusting the wine for taste, says **Denise Horne**, director of information technology for Kendall-Jackson

Wine Estates, a large, family-owned winery in Santa Rosa, Calif. "You can't put a formula on it and say, 'Do this every time.'" Also, most ERP systems would be hard-pressed to cope with the fact that many wineries grow grapes for and buy grapes from their competitors.

So Kendall-Jackson developed its own bulk-wine system, called BIMS (bulk inventory management system). BIMS was three years in the making, but the payoff came in

streamlined operations and the joy of having an application that is a perfect fit for the business, according to Horne. "We're very proud of BIMS. It would take three people at each winery to do what the system does today," she says. Programmed in RPG (report program generator language) on the AS/400 platform with a Visual Basic/Windows user interface, BIMS logs the receipt of grapes at the crush facilities at Kendall-Jackson's eight wineries and tracks the grapes' transit up to the point the juice gets staged for processing.

Many wineries elect to implement ERP packages and then integrate them with their bulk-wine systems. For example, Trinchero Family Estates, a large winery in St. Helena, Calif., completed a \$2.5 million implementation of three SAP R/3 modules in 1997. Trinchero, with four production facilities, a distribution center and 15 vineyards to its name, originally targeted the project as a fix for the Y2K problems in its legacy systems, according to Anthony Trinchero Torres, the winery's vice president for administration. Another goal of the implementation was to eradicate the departmental information silos that had evolved over the years.

The payback in increased productivity from integrating data from the company's functional areas was so great, Torres says, that the company has just gone live with a \$3.5 million implementation of SAP R/4.6, to which its Gulson and Associates Wine Inventory Production System has been linked. SAP has been a hefty investment for Trinchero, which has revenues of about \$300 million (the company is privately held), but Torres has great expectations. "We're not afraid to spend the money if we know what it's going to be doing for us. We saw payback for the first [SAP implementation] within 24 months," he says.

Taming a Logistical Nightmare

With the shortage of industry-specific software, wine IT executives have had to become adept at creating artful solutions to thorny problems. Take **Rich Ferrario**, manager of

Rich Ferrario, Canandaigua Wine's manager of IT, used simulation software to solve his wine-transfer process problems.





 **TOSHIBA**
COPIERS • FAX



DEMAND MORE. DEMAND TOSHIBA.

www.copiers.toshiba.com or call 1-800-GO-TOSHIBA

IT for the West Coast wineries of Canandaigua Wine Co., a division of \$3.1 billion Canandaigua Brands, of Fairport, N.Y. Second in the U.S. market only to E&J Gallo Winery, Canandaigua markets wine under brands like Inglenook, Paul Masson, Manischewitz and Almaden in addition to selling beer and hard liquor. Canandaigua produces between 50,000 and 80,000 cases per day and maintains six West Coast and three East Coast wineries.

Ferrario was troubled by problems that plagued the wine-transfer process. At a large facility like Canandaigua's Escalon Cellars in Escalon, Calif., wine is stored in enormous stainless steel tanks holding up to 500,000 gallons. During crush season, storage space is at a premium. So when wine ships from one tank, another batch of wine is moved via pipes into that empty tank to free up space for newly produced wine. The problem? Canandaigua's storage facilities consist of 500 pipe segments, 300 valves and 865 connectors, each with its own set of variables (such as flow direction, size of line and whether the pipes are jacketed to minimize heat loss or left bare to encourage heat loss). And once a line is in use, it cannot be used by another winery worker. Often, however, winery workers would each map out the best route for two different tanks of wine and accidentally use the same lines. In that case, someone was the loser. "There would be a broken path, and wine could end up on the ground. Either that or a very heated discussion would break out," recalls Ferrario.

In looking for an automated way to determine the availability of equipment and the best route to use, last year Ferrario happened across a presentation done by Computer



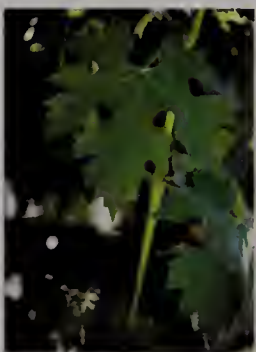
Jamie Meves, chief winemaker at Canandaigua, says technology won't replace human intervention in the winemaking process—but it can help.

Aided Process Improvement (CAPI), a consulting company in Jacksonville, Fla. The presentation detailed a simulation project CAPI did for another large winery based on San Jose, Calif.-based Imagine That's Extend process-simulation software. Ferrario was intrigued with the idea of applying simulation to Escalon's wine-transfer process. He agreed to a pilot project using Extend+BPR,

which has just been completed.

With the help of Greg Hansen, president of CAPI, Ferrario and his team spent several weeks creating an Excel database of all the connections, pipes and valves at Escalon. Then Hansen manipulated the Extend product to mimic the thought processes of the people who move the wine. At the beginning of the day, the supervisor runs the Extend application, which then compiles a list of work orders for the best routes for all the wine that is to be moved that day.

"Once the work order is generated, those connections are no longer available to the program until the order is



"We push the envelope using technology to make better wines. Making a great bottle of wine gives me a great feeling."

—Bernie Lacroute, president, WillaKenzie Estates



***"e billing... e presentment... e payment...
we've got to convert...our competition is way ahead...
how long should we keep our paper system going?...
don't want any slip-ups...finance guys'll be happy...
we need solutions!...now!"***

Princeton eCom is the most innovative company in the Electronic Bill Presentment and Payment business.

Our technology enables you to quickly present both business invoices and consumer bills on the

Internet with the ability to access and pay online, by phone or even with wireless digital devices.

Imagine having secure, seamless integration into your A/R system and reduced DSO.

What a competitive edge!

For over 16 years we've created business solutions that work. Let us show you how they can work for your company...now!



www.princetonecom.com

609.606.3000

SEAMLESS E BILLING SOLUTIONS FROM END TO END

DATA

DESIGN

PRESENTMENT

NOTIFICATION

PAYMENT

CRM



“The [wine industry] has traditionally been a late adopter of technology. But that’s all changed.”

—Doug Walker, VP of corporate planning and IT, Beringer Wine Estates

marked as completed in the system,” says Ferrario. This saves a lot of hassle, not to mention improving relations among employees.

Ferrario is now evaluating the benefits of deploying the simulation application at Canandaigua’s other two large West Coast wineries—Mission Bell and Paul Masson, both in Madera, Calif. The senior manager at the Escalon winery has not only given the green light for a full-scale rollout, but is quite excited at the prospects. While Ferrario and his team have not taken the time to undergo a formal ROI analysis, the gut-check has been positive. “We think this has the poten-

tial for payback of between \$50,000 to \$70,000 in savings [at the Escalon winery] over the next couple of years,” he says. The application will allow the Escalon facility to reduce head count by one. Ferrario and his team are planning to evaluate whether the company’s remaining six smaller wineries could benefit from the simulation application.

Grape Expectations

It’s not only the giants of the industry like Canandaigua that invest in superior IT. With just 17 employees and a production rate of a modest 13,000 cases per year,

WillaKenzie Estate plays David to Canandaigua’s Goliath. But with President Bernie Lacroute at the helm, the tiny company is an astute user of technology.

Transplanted to the United States from Macon, in France’s Burgundy region, Lacroute went to work applying his first love—technology—during the early days of the computer revolution. (He says he spent several years trying to convince his managers at Digital Equipment Corp. of their folly in ignoring the PC.) Having amassed a fortune throughout the 1980s (he worked at Sun Microsystems after Digital and then joined





↑
THIS
END
UP

HOW MUCH SERVICE IS BEHIND YOUR ASP?

It's time for something better. Introducing PSINet Consulting Solutions. A new breed of ASP. Instead of partnering to meet your needs, we own and stand behind all of our services. As a single, seamless company, we can better manage and support your mission-critical applications—whether you need hosting, a pure-play ASP, or customized ASP solutions. From the network, to the infrastructure, to global consulting services, we own it. Period.

Conventional ASPs are loose associations of specialized providers. You may have one contact, but many companies work for you. Communication challenges multiply. Exactly who has your data? What if something slips through the cracks?

Or, what if you hired an ASP that understands the 'S' in the middle means service?

It's time to expect more from your ASP. It's time to get more from your enterprise. To receive an industry-specific look at our offerings, simply call 888-PSI-4884. Or visit us online at www.ASPendtoend.com.



Take a moment to look over our capabilities.

If anyone can measure up to our total ownership and total service, call them.

A better way to outsource

- Full-service solutions through a single, integrated, wholly-owned source
- Network, infrastructure, and consulting, plus operations maintenance and management
- True end-to-end business solutions

Enterprise
Resource
Planning
Solutions

- > Oracle
- > SAP
- > Great Plains
- > Baan
- > PeopleSoft

Full-service solutions

- Enterprise Value Chain (EVC) package planning, implementation and consulting
- Application customization and integration
- Education, training and support documentation
- Post-implementation consulting solutions
- Applications hosting and support
- Data warehousing solutions
- eEnablement of EVC applications

- Supply Chain Management Solutions (stand alone or extension of ERP backbone)
- Customer Relationship Management Solutions (stand alone or extension of ERP backbone)

Application portfolio


PSINet
Consulting Solutions

888-PSI-4884
ASPendtoend.com

We Heard You.



You asked **CIO** to help educate senior management on the business value of technology.
We heard you. And we're pleased to announce **DARWIN**.

DARWIN is the first magazine, written, edited and calibrated for business executives. Every issue demystifies technology for non-technology executives and helps them understand, identify and support technology options to achieve your organizational goals.

DARWIN covers all the technologies executives need to know, not just the Internet. From application software to ASPs, from encryption to ERP, hardware to hosting,

VPNs to vendor relations — everything it takes to use technology to solve business challenges.

DARWIN is **FREE** to qualified non-technology executives. Tell your team to apply for a Free Subscription at www.darwinmag.com/subscribe

the venture capital firm Kleiner, Perkins, Caulfield & Byers in 1989), he set up shop as a gentleman-winemaker at WillaKenzie, in Yamhill, Oregon.

There he pursues his craft with the utmost respect for the grapes, informed by the use of technology. WillaKenzie uses GPS technology to map the nutrient needs of the various areas of the vineyard. Computerized sensors measure ground moisture as well as the presence of special microorganisms that help the roots of the vine absorb micronutrients in the soil. Inside, the winery is gravity-fed, meaning that it does not use pumps (which are too rough on the grapes used in making WillaKenzie's elite pinot wines). The grapes are punched down by a piece of equipment invented by Lacroute called Big Foot, which apes the age-old technique of crushing by foot but contains microprocessors that apply just the right amount of pressure to the grapes. The wine is stored in tanks, and the temperature is controlled by microprocessors. The vineyard manager tracks every vineyard and winemaking activity in an Access database. All this is pretty impressive, considering most other wineries of WillaKenzie's size use no technology.

"We use traditional Burgundian methods to do what we do. But we push the envelope using technology to make better wines," says Lacroute. "Making a great bottle of wine gives me a great feeling."

Harvesting Data

Most wineries apply technology to aid in the production process; few currently do much in the way of market data analysis. That's partly because there is no source for comprehensive, up-to-the-minute market data. "Market analysis is the greatest need and the greatest hole that exists today. There's no comprehensive source for real-time data," says Cartiere of the *Wine Market Report*.

Beringer Wine Estates, a \$376 million Napa, Calif.-based winery, is further along than most wineries in its use of data analysis applications. Vice President of Corporate Planning and IT **Doug Walker** provides Beringer's business analysts with real-time data on shipments to their distributor network, as well as shipments from those distributors to retail stores and restaurants. This data is automatically collected at the end of every day and fed into a Microsoft SQL

Server relational database management system that is linked to Beringer's J.D. Edwards & Co. system, which runs on an AS/400.

In addition to its own sales data, Beringer also downloads daily sales information on all the wine purchased at grocery stores nationwide from ACNielsen Corp. This system isn't perfect, however, since it leaves out data from states, such as Massachusetts, that restrict the sale of alcohol in grocery stores. But for Walker, it's still worthwhile. "The Nielsen data is good directional data. We're looking for broad consumer purchasing trends," says Walker, such as how consumers might respond to Beringer's new upper-end Founders' Estate brand. Walker eagerly awaits the day when real-time market data can be culled from all sources on the fly.

One of Beringer's most important data-analysis tools is a homegrown production planning program used in decision support. The application extracts sales data from the SQL database and converts it into how many grapes of what varieties the winery will need in a future year. The application will dictate how much of a certain variety of grape a particular vineyard should plant in order to meet production demand years later

WINE DEFINED | A SAMPLING OF WINES AND WHAT THEY TASTE LIKE

Red Wines

Cabernet sauvignon (*cab-er-nay so-vee-n'yohn*): a red-grape variety. Often blended with merlot and cabernet franc. Flavors run from red cherry to black currant and are usually quite assertive.

Merlot (*mair-lo*): a red-grape variety. While capable of producing red wine with a soft, plummy character that is immediately appealing, it is also capable of producing wines of substantial intensity that will age for many years in the cellar.

Pinot noir (*pee-no n'wahr*): a red-grape variety. Along with cabernet sauvignon, pinot noir is generally thought to be the world's finest red-wine grape. Wines range in style from amazing delicacy and grace to voluptuous, velvety intensity. A wine for sensualists.

Zinfandel (*zin-fan-del*): a red-grape variety. With origins not entirely established by wine world scholars, zinfandel is nevertheless at home in California. Wine styles run the gamut from blush wines with just the barest hint of color to nearly opaque, inky monsters.

White Wines

Chardonnay (*shar-doh-nay*): a white-grape variety. The white wine darling of the wine world. Widely planted and fairly successful in

many areas of the world. Varies widely in style from the crisp lemon-lime mineral flavors of classic chablis to rich, oaky, buttery wines from Australia, California and other areas of the "new world."

Pinot gris/grigio (*pee-no gree; pee-no gree-d'jo*): a white-grape variety. Also related to pinot noir; the name literally translates as "gray pinot." Typically at its richest in Alsace and at its leanest in northern Italy.

Sauvignon blanc (*so-vee-n'yohn blahn*): a white-grape variety. The white wine relative of cabernet sauvignon and a white-wine varietal with a particularly assertive personality. Flavors run from citrus-gooseberry intensity to round, rich melon and fig.

SOURCE: WINE.COM





➤ SURE, THEY LOOK GREAT.

➤ BUT YOU WANT A REAL B2B E-MARKETPLACE.

➤ YOU NEED MORE THAN AN IMAGE.

➤ YOU WANT SOMEONE WHO UNDERSTANDS

➤ WHERE YOU WANT TO GO.

➤ AND HOW TO GET YOU THERE.



e-Marketplace solutions from a strategic partner with the real-world experience to deliver value and support your long term objectives.

1 - 8 7 7 - 6 6 2 - 3 7 6 5

W W W . O S P R E Y U S . C O M

© 2000, Osprey Systems, Inc. All rights reserved. Osprey and the Osprey logo are trademarks of Osprey Systems, Inc. Other company and product names contained herein are trademarks of their respective companies.

WINEBATTLE.COM | GOVERNMENT AND SUPPLY-CHAIN ISSUES BOTTLENECK THE SALE OF WINE ONLINE



Sure, you've heard about Wine.com (formerly Virtual Vineyards) and a few other e-commerce wine sites. But have you ever tried to buy wine from any of them? Depending on where you live, you may have been stymied in your attempt to order wine online because the dotcom couldn't ship wine to your state.

State law governs the shipment of alcohol across state lines, and only 12 states allow unfettered shipment of alcohol to each other (the so-called reciprocity states). For every other state, there are regulations, ranging from an outright ban on alcohol shipment to the need to be licensed like any other retailer to sell alcohol in that state. With such a regulatory morass, it's no wonder B2C wine commerce has not yet taken off.

The U.S. wine industry uses a strict three-tier distribution system that consists of the wine producer (supplier), the distributor (wholesaler) and the retailer or restaurant. A tripartite battle is now raging among dotcoms (such as Wine.com) that wish to ship alcohol without complying with draconian state laws, dotcoms that are

when the grapes are ready to be harvested. "We're telling management, 'This is what we need from our vineyard operations to meet the sales forecast,'" says Walker. "The senior vice president can sit down with the CEO and figure out if we have enough fruit growing now in the Sonoma Valley to produce what we need to produce in 2004. If not, we can make plans to mitigate the shortfall."

Not surprisingly, top Beringer managers

are delighted with this application, which eases the process of long-term planning enormously. "IT is becoming increasingly strategic. [The wine industry] has traditionally been a late adopter of technology. But that's all changed," says Walker.

Maybe so, but no matter how much innovative IT Beringer and other wineries bring to bear on their ancient metier, technology will never supplant the most impor-

spending heavily to comply with those laws (such as eVineyard) and distributors and retailers (which are fighting tooth and nail to prevent e-commerce from occurring at all). This last group has a strong weapon in its argument that direct shipping of alcohol means minors will have easier access to it.

Most wineries are electing to sit out this battle, not wanting to enrage their channel partners and because they're unable to ship millions of cases of wine via FedEx, anyway. "A winery can't be in business without the three-tier system," says Paul M. Ginsburg, executive vice president of Kendall-Jackson Wine Estates in Santa Rosa, Calif.

On the other hand, it's incredibly frustrating for wine industry IT executives to find their B2C e-commerce strategies hamstrung by a political slugfest. "No one wants people who are not of legal age to drink, but to use that as a tool to thwart e-commerce is unfortunate," says Doug Walker, vice president of

corporate planning and IT for Beringer Wine Estates in Napa, Calif.

Quite apart from the question of direct shipping, B2C websites present an enormous opportunity for a two-way flow of information with the consumer. "Traditionally, our industry has had a problem getting useful information about wine to the consumer. If you go to a normal retail environment, it's difficult to find anyone who can help you. You immediately have a lack of information," says Bill Newlands, president and CEO of Wine.com in Napa. Wine.com has a team of 15 professional wine tasters who have the arduous job of tasting every type of wine that is sold on its site and drafting tasting comments—written in plain English, for a change.

Consumer websites also give wine suppliers a golden opportunity to get to know their customers. Says Ginsburg, "We don't get to talk to the end consumer. We're dying to have a relationship with that person and find out his likes and dislikes." Ginsburg says he would willingly forgo any Web-related revenue for the chance to pore over consumer preference data.

—L.G. Paul

tant part of the winemaking process. Says Cartiere, "The tongue is still the primary information tool in the wine industry." And ever it will be. **CIO**

What innovative ways are you using IT in your industry? Associate Editor Tom Wailgum wants to know at twailgum@cio.com. Lauren Gibbons Paul is a freelance writer in Waban, Mass. She can be reached at lauren paul@mediaone.net.



Just how does he know who's been naughty or nice?

He handles billions of customers. Yet each one gets individualized attention. Personalized marketing. Personalized service. Personalized transactions. That's the magic of personalized eBusiness.

You have thousands, perhaps even millions of important business relationships too. Since you can't use elves, let us suggest ePresence.

ePresence consultants can help you build an eBusiness solution that gives every one of your customers, business partners, suppliers and employees a totally personalized experience. Making it easier for them to do business with you. And building satisfaction and loyalty that'll make them want to welcome you with milk and cookies.

Let us show you how. Go to www.epresence.com. Or call 1-800-222-6926.

 **presence**SM
eBusiness. We make it personal.SM



PHOTOGRAPHY BY GREG GILLIS

Office-furniture giant Herman Miller
uses an online portal to tighten its supplier
relationships BY DEREK SLATER

PORTAL POTENTIAL



Exchanges, portals, auction sites—whatever the method, everybody's trying to aggregate supply and demand and operate their supply chains in new and more efficient ways. Office-furniture maker Herman Miller in Zeeland, Mich., got an early jump start two-and-a-half years ago on the development of a portal that lets suppliers rifle through data from Herman Miller's ERP system.

Mike Brunsting, electronic commerce/EDI team leader for the \$1.9 billion company, spoke with *CIO* about Herman Miller's efforts and the results thus far.

CIO: Herman Miller got into the portal game early. What led you to build your supplier portal?

Brunsting: This effort really started for us two-and-a-half years ago when we were going through process reengineering for our Baan [enterprise resource planning software] implementation.

I was part of a team looking at our purchasing processes. Out of that effort, we knew we had to change the way we were communicating with our suppliers.

The office-furniture industry has always been regarded as slow moving and unreliable—and rightly so. Herman Miller is looking to reduce lead times, while at the same time increasing reliability. From a purchasing perspective, we knew we could do all this stuff internally to improve our processes, but to be truly successful we needed to eliminate the waste in communicating with our suppliers. We'd been unsuccessful in the past at getting widespread adoption of EDI because many of our suppliers lack the technical sophistication or the resources. But we needed to put a stake in the ground, so we said, "We're going to do this through the Internet."

In building the portal, we had two main requirements. One was we needed two-way communication—back-and-forth collaboration with suppliers. The second was that we wanted to give them a real-time look at our business. We still do some batch processing on our back-end ERP system, but wherever possible we want to give our suppli-

ers the ability to see transactions on a real-time basis.

What kind of communication is important? And what type of information are suppliers looking at?

On the financial side, suppliers are looking at our prices to make sure we're in sync, and they look at payment information to see which invoices we're paying. Then on the planning side, they're able to look at our manufacturing lead times and engineering data like materials requirements, drawings and revision letters. We're working on another project to convert our proprietary drawing viewer so that we can display the drawings over the Internet, plus actual demand data.

So it's more than just Baan data. Does that complicate matters?

Originally we planned to have 100 percent of our enterprise running on Baan over a year ago. Now we've decided that certain parts of the business may stay running on our old legacy systems.

The challenge is that, to our suppliers, we're making it look like they're coming into one portal—they don't see how many systems we're running behind the scenes. You can't always make it seamless on the back-end, so it's different looking at Baan information as opposed to stuff from the legacy system. You have to decide whether to go directly to the data or bring the data into a warehouse and massage it—but then you're doing batch processing and dual maintenance, so that's messy.

How did you arrive at a portal as the answer? What about auction sites or some of the other options?

At that point in time there wasn't anything out there as far as an independent trading exchange. Our options were limited. There also were not a lot of off-the-shelf products. We were pretty adamant that we didn't want to build it ourselves. We've built a lot of systems successfully, and a lot of those systems are still supporting our core business today, but over the years you wind up putting on a lot of Band-Aids and don't get to take full advantage of advances in technology. We wound up bringing in a vendor called TopTier to help build the portal. This plan lets the technology vendors focus on advancing the technology, while we focus on the business issues.



"We'd been unsuccessful in the past at getting widespread adoption of EDI because many of our suppliers lack the technical sophistication or the resources."

—Mike Brunsting

Do you have what it takes to outsmart a hacker?

Malicious hackers are anything but hacks. To give you an idea of what you're up against when you put your corporate assets online, we put together a little Mensa® Pop Quiz. So give it a shot. When you're done, you can check your answers at www.guardent.com.

That's where we come in. We're Guardent. We're digital security specialists. Our security architects carry CISSP credentials (Certified Information System Security Professionals) and average more than 10 years of security experience.

How did you do? If you aced it, congratulations. But, you still have a problem that's even tougher to solve. Not only are the people trying to crack your security very bright, they also spend every waking hour thinking up new and innovative ways to break in. Meanwhile, you're busy expanding your business and creating new and vital links to

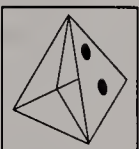
outside suppliers, partners, and customers. Putting your business online makes it more valuable and more vulnerable. Not exactly your ideal risk/reward scenario.

So instead of textbook fixes, you get tailored, real-world solutions. Most importantly, providing Internet security services is all we do. We don't sell products and we won't build you a new website. Instead, we spend every waking hour thinking up new and innovative ways to make businesses like yours more secure.

GUARDENT POP QUIZ #1

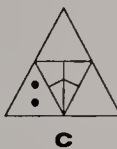
Courtesy of Mensa

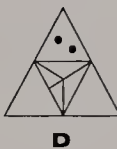
1




A


B


C


D

2



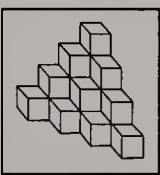

A


B


C


D

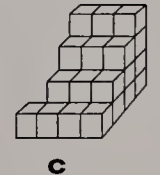
3



=

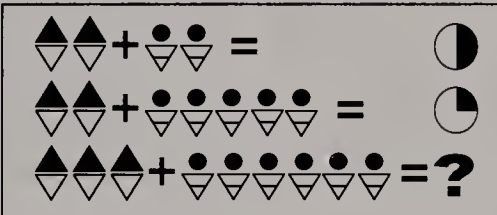

A


B


C


D

4




A


B


C


D

*If you think you can compete with hackers,
ace this test in 15 minutes or less.*

For more information, visit us at www.guardent.com or call toll-free at 888-413-4344. You'll see that choosing Guardent as your digital security partner is a no-brainer.



GUARDENTSM
secure digital infrastructure

INVESTORS: CHARLES RIVER VENTURES • NEW ENTERPRISE ASSOCIATES • SEQUOIA CAPITAL
LOCATIONS: BOSTON • LONDON • TORONTO • SEATTLE • WASHINGTON DC • MINNEAPOLIS • SAN FRANCISCO

Problems provided courtesy of American Mensa. © Dr. Abbie F. Salny, Mensa's Supervisory Psychologist.

Now that exchanges are becoming more viable, is that an option you've evaluated—dropping the portal and moving your purchasing to an independent trading exchange (ITE)?

We are somewhat unique in that we will design a product and all the parts that make up that product, and then go find the supplies. The materials are not something that [the suppliers] could sell to our competitors, so I'm working on direct material that goes into our product. For example, our Aeron chair has a mesh cushion, and that mesh is unique to our product, as opposed to, for example, MRO [maintenance, repair and operations] items like office supplies. We might eventually do something there with an ITE.

For most large companies that have a pretty close supply chain system with suppliers, there will be a need for both public and private trading exchanges.

There's quite a bit of hype out there regarding portals and other supply chain or procurement mechanisms. Plug it in, turn it on, save billions of dollars—is it really that simple?

Our portal went live September 1999. Right now we have roughly 50 percent of our core strategic suppliers connected to it, so we're in full production.

I'm a true testament to the power of the TopTier technology: My background is all manufacturing and purchasing, I came to IT just over a year ago, and I've been able to do all the development on the client side, all without writing a line of code.

The delay is more on the training side. One of the things we've found is, when you start opening up your systems to your suppliers, there's a whole new level of business literacy that has to be in place, and it's outside your four walls. We're actually going to suppliers one-on-one and providing the training at their facilities.



What returns have you gained for your investment?

The hard-dollar return is tricky. This question always comes up, but we didn't really have to do [a hard-cost justification]. From our senior executives on down, we have decided we *will* connect our suppliers and our customers. Everything has to tie in to that corporate strategy, so we had to

"For most large companies that have a pretty close supply chain system with suppliers, there will be a need for both public and private trading exchanges."

—Mike Brunsting



show how we're going to improve reliability from a general standpoint, but not with specific numbers. And we've brought our reliability from 75 percent to more than 90 percent in on-time shipment. That's a combination of all the work we've been doing internally and externally.

At the end of our presentation when we're training suppliers, at times I've thought it must feel like we're pushing everything off them. But the reception has been very positive. In the past they had to make decisions based on very limited information. So they were doing a lot of guesswork, making assumptions. Now they don't have to call three people at Herman Miller to get information or make guesses. So they feel like it's a time-saver.

It's a big shift from the old purchasing model, which was: The more information you had and the less your supplier had, the more power you had. When you went into negotiations, you had the edge. Today, it's all about sharing information, and that feels a lot better to the suppliers. **CIO**

Hammered the kinks out of your supply chain yet? Tell Executive Editor Derek Slater your story at dslater@cio.com.

CHAOTIC



**Are you really an e-business if this is how you
PERSONALIZE CONTENT?**

Content is your e-business, and personalized content is your e-business advantage. Vital relationships depend on how readily you can access and deploy personalized, relevant, and trusted content to multiple sites from multiple sources. Treat your content like so much surplus inventory from the old economy, and watch your strategic advantage migrate to the competition. Only Documentum's content management platform ensures that content is customized and pertinent—across your entire e-business. Visit www.documentum.com.



THE ADVANTAGE IS CONTENT.



With clear guidelines, keeping tabs on e-mail may not alienate employees. That doesn't mean there aren't pitfalls.

we've GOT MAIL

BY KAREN D. SCHWARTZ

“Hi, Bob. How are the kids? Guess what? We just signed Keanu Reeves to reprise his role in *Speed III*. I hope I see him walking around the lot one of these days! Talk to you soon, Janice.”

E-mails like these are Jeff Uslan's worst nightmare. Uslan, manager of information protection at 20th Century Fox, is doing everything he can to prevent e-mails containing sensitive company information from getting into the wrong hands. After all, virtually all of the media company's assets are trade secrets. A simple oversight—one e-mail getting into the wrong hands—can nix a deal three years in the making or give competitors a jump on a great concept.

Reader ROI

- Discover the importance of creating e-mail monitoring policies
- Find out the problems e-mail monitoring holds for companies and employees

E-Mail Policies

Uslan is one of a growing number of managers whose companies keep tabs on employee e-mail. For many companies that monitor both incoming and outgoing e-mail messages, the reasons for doing so are compelling: safeguarding intellectual assets, improving productivity, defending against viruses, and preventing sexual and racial harassment are just a few of the benefits cited. Yet the practice is not without a dark side. For employees, the idea that their employer looks at their e-mail carries with it connotations of Big Brother and can crimp morale as a result. Even employers face a downside to the practice. Recent court rulings have found that companies that monitor e-mail and have not curbed offensive or inappropriate material are liable for damages. Yet for those companies that have taken the monitoring route, there are ways to minimize the risks while keeping the benefits intact.

For most companies, the decision to monitor e-mail is defined by a business rationale. "Our business is entirely intellectual property," says Uslan. "If one of our employees leaks information about a new movie we're going to produce or a star we're going to sign up, management is going to be very concerned. And the last thing writers working on a screenplay want is to see their scripts being e-mailed outside of the studio."

To prevent trade secrets from leaving the Los Angeles-based studio, last year Uslan implemented e-mail monitoring software from Elron Software of Burlington, Mass., that tracks messages sent to and received by the lot's 5,200 employees.

By implementing the software, Uslan says he is addressing many of the company's concerns. In addition to helping prevent leaks of intellectual property, the company now has a set of tools to help block spam and damaging viruses.

Increasingly Popular Trend

Monitoring employee e-mail is becoming a widespread practice. In fact, the American Management Association reported earlier

this year that nearly 40 percent of major U.S. companies now do so, up from 15 percent in 1997.

Employers are choosing to monitor e-mail for a variety of reasons, ranging from added virus protection, guarding intellectual property, and limiting liability to preventing sexually and racially charged jokes and other inappropriate content from proliferating throughout an organization.

But at the root of most e-mail monitoring efforts is a desire to maintain productivity and limit liability. "Employers are liable and responsible for maintaining positive work environments for their employees," says Ellen Bayer, global practice leader for human resource issues at the American Management Association in New York City. "If a person is downloading offensive jokes, it impacts

content from the division's 1,500 employees, Warner Electric's system also limits entering and exiting message size to no larger than 10MB. Klotz also plans to more aggressively filter outbound e-mails to guard against losing trade secrets and other proprietary information.

Added Security

For many organizations, the primary reason for implementing an e-mail monitoring tool is not to catch employees who send too many e-mails to friends or inadvertently (or intentionally) transmit trade secrets, but to add another layer of virus protection.

Last year's Melissa virus and others that followed it prompted the Department of Energy to move forward on plans to install a full-fledged e-mail monitoring system. After

While it's clear that EMPLOYERS are seeing the benefit of e-mail MONITORING, it's less CLEAR how well employees are accepting the SITUATION.

their productivity. If they are then forwarding them on to other colleagues who feel they have now been subjected to a hostile work environment, the employer is liable. And in many cases, it also affects workplace morale."

Blocking offensive e-mails and nettlesome spam was the primary reason Rick Klotz opted to monitor e-mail. In April, Klotz, manager of IT infrastructure for Warner Electric in South Beloit, Ill., began a phased rollout of Message Control, a monitoring tool from United Messaging of West Chester, Pa. "I've added quite a bit to my joke collection," Klotz says since implementing the tool. Although the system is still fairly new and monitoring is not yet routine, Klotz expects a formal system to be set up soon. Eventually, he says, the system will be expanded outside of Warner Electric into other areas of Colfax Corp., the organization's parent company.

In addition to scanning and screening for

discussions within the Office of the CIO, the DOE contracted with ACS, a Rockville, Md.-based contractor, to install and manage the Messaging Management System (MMS) from Tumbleweed Communications of Redwood City, Calif.

Today the system monitors e-mail activity by all of the 10,000 employees split at the two DOE sites in Washington and nearby Germantown, Md. One feature of the system—the ability to block junk mail—is something employees have grown to appreciate.

Although the intent is to eventually include content monitoring, security has always been the first priority, says Charlie Smith, lead engineer for the DOE's Office of the CIO. Smith, who is on the payroll of ACS but works at the Energy Department, is in charge of using MMS to protect the DOE's e-mail infrastructure by scanning for viruses and other harmful content such as denial of

refurbished

tested
retested
guaranteed*

hey, we know what a small budget's like.

after all, we started in a dorm room.

Ask about Dell™ systems,
like this PowerEdge™ server,
featuring Intel® Pentium® III
processors.



If you have big business ideas on a small budget, we know how you feel — we started in Michael Dell's college dorm room. And ever since then, Dell's been bringing great technology direct to you at a great price. At the Dell™ Factory Outlet online you can get a refurbished Dell desktop, notebook, workstation or server at a discount. All of our systems are tested and guaranteed with our same-as-new Limited Warranty.¹ And most come with Intel® Pentium® III processors. Plus, it's easy to find a system for your business. Browse online 24 hours a day. And simply call our reps to order. The Dell Factory Outlet. Where you get a great deal from someone who's been there.

find the system that's right for you. speak with our helpful reps:
mon–fri 7am–9pm CDT • sat 10am–6pm CDT • keycode 29CIO

DELL™ factory outlet

shop online. buy on the phone.

888.422.4808

www.dell.com/outlet

DELL  **COM**

All systems refurbished and for U.S. only. Dell Computer Corporation cannot be held responsible for errors in typography or photography. ¹For a complete copy of our guarantees or limited warranties, write Dell Computer Corporation, Attn. Warranties, One Dell Way, Box 8621, Round Rock, TX 78682. Dell, the Dell logo, and PowerEdge are trademarks of Dell Computer Corporation. Intel, the Intel Inside logo, and Pentium are registered trademarks of Intel Corporation. ©2000 Dell Computer Corporation. All rights reserved. **SUPPLIES ARE LIMITED AND CHANGE DAILY.**



service attacks via unsolicited e-mail.

Scanning incoming e-mails for viruses and controlling the type of attachments entering and leaving the organization were both factors in Saga International Holidays' decision to implement an e-mail monitoring system. But the most important reason the Boston-based travel agency went with monitoring technology was to protect against the transmission of some or all of its greatest asset—its database of 5 million customers. Last year, Saga implemented MIMESweeper from Content Technologies of Bellevue, Wash.

The package allows for file blocking, so Saga's IT department can prevent executable files from being sent or received. An employee "would have to get a portion of our entire database out the door to hurt us, and they can't do that because we prevent those types of files from being sent out," says Ron Valcourt, manager of network operations for the 200-employee company that

specializes in travelers over age 50. It's not as if Valcourt doesn't trust his employees. On the contrary, he says that monitoring e-mail is simply taken as a matter of course in the day-to-day running of the business.

To provide a secure place for its corporate customers to conduct business, Bank of America's Global Corporate Investment Bank (GCIB) division chose to implement an e-mail monitoring package. The organization of 12,000 employees in 130 domestic locations, which handles trading, equities, loan syndications, foreign exchange and other functions for commercial clients, uses two tools to provide the highest level of service to its customers.

The company installed Veranda from Tally Systems of Lebanon, N.H., to ensure that e-mails are transmitted quickly and efficiently, and to determine the flow of e-mails within GCIB's individual business units. For content monitoring, the company uses

Assentor from SRA International of Fairfax, Va., which screens and archives messages in a manner that is compliant with Securities and Exchange Commission monitoring guidelines—something that is essential in the financial industry, notes David Hendricks, a senior vice president who manages messaging services for Dallas-based GCIB.

Different Tools for Different Needs

Although all e-mail monitoring packages possess similar content filtering capabilities and reporting mechanisms, each targets a niche in the marketplace. Some, like Tumbleweed's MMS, aim to provide unified management of e-mail and Web policies, while others, like Binary Research International's MailMarshal, seek to block specific messages by intercepting e-mail and searching for keywords. Still others, like Tally Systems' Veranda, can identify threats by decomposing e-mail objects such as attachments, zipped files and files embedded in attachments.

In addition to choosing the right tool for the job, companies often choose to use some of a package's capabilities and not others. While Cleveland-Cliffs, a supplier of iron ore products, uses Binary Research's MailMarshal to scan for viruses and weed out e-mails with inappropriate business content, it does not intend to use the system to scan for leaks of trade secrets. "It's such an established industry and sales are still done face-to-face in a traditional manner, so we don't have as much need for that as other companies might have," says John Bauer, lead network engineer at the Cleveland-based company.

And 20th Century Fox, which so zealously guards any type of trade secret, chooses not to monitor for sexually or racially explicit content because of its unique industry.

"Say two writers are cowriting a script. They send e-mails back and forth to each other discussing nudity, so the e-mails contain many of the things that could be considered explicit or harassing. So we don't even try to monitor for that type of content," Uslan explains.

This is the dog
That belonged to the man
Who was assigned the mind-numbing chore
Of upgrading the T1 lines
Of the 12 offices
Of the regional start-up
Whose CEO didn't realize
The man knew of a Web site called
Databid.com
Where he could submit
All of his datacom needs
And service providers
Would compete for his business
Which gave him the time
To train the dog
To serenade him
As he sat at his desk
In control of the process.



DATABID.COM
Control the process.

Employees' Concerns

While it's clear that more and more employers are seeing the benefit of implementing full-fledged e-mail monitoring systems, it's less clear how well employees are accepting the situation.

Perhaps that's because more employees than you might think are actually abusing their e-mail privileges. According to a recent study of 1,000 employees done by Vault.com,

To avoid employee complaints and misunderstandings about the intentions of such systems, companies should have a clearly communicated policy on what type of monitoring is routinely performed on e-mails, including a statement that e-mail transmissions are the property of the employer. Employers should also make employees aware that e-mails are automatically saved on a back-up computer system even though

says Rita Risser, an attorney with Fair Measures Corp., a Santa Cruz, Calif.-based company that trains executives and managers in management practices.

Although there is no law that says employers legally must inform employees of e-mail monitoring policies, doing so can help protect the company against liability claims made at a later time, says Ginny Bain, an attorney in the labor and employment section of Smith Helms Mulliss & Moore of Greensboro, N.C. "We are beginning to see privacy suits and wrongful termination and discharge suits with regard to e-mail monitoring, but the employee has yet to prevail," she says. The reason: Privacy law is based on the reasonable expectation of privacy. Therefore, employees must prove that they had a reasonable expectation of privacy, and courts have held that employees don't have

Informing employees of E-MAIL monitoring POLICIES can help protect against liability.

an Internet-based career and human resources website, 14 percent admitted to forwarding sexually explicit or otherwise improper e-mails to friends or coworkers, and 83 percent said they send personal e-mails during the workday. (The study did not discuss the number of personal e-mails sent during a typical workday, so the overall impact on productivity was not determined.) Compounding the problem, 51 percent said the tone of their e-mails is sometimes misconstrued as angry, abrupt or overly casual.

When the DOE first implemented its system, some employees did indeed complain. But Smith—and his superiors at the Department—weren't concerned about the "Big Brother" types of complaints. "How can you legitimately complain about not receiving something that has no business in the workplace anyway?" Smith asks.

But once the shock wore off, many employees even began to like the system. Once they realized they didn't have to be inundated with junk mail, Smith says, "they actually started asking us to do the blocking."

At Warner Electric, employees are taking their time testing the system's boundaries. "They want to know how hard we're going to come down on them, and if we plan to turn them in to human resources," says Klotz. The first real case of e-mail abuse will help the company decide how to handle these issues, he adds.

they have been deleted by the author.

By informing employees of e-mail policies, "you give them a chance to self-regulate,"

TOO MUCH MONITORING

Although more and more companies are implementing comprehensive e-mail monitoring policies, there can be such a thing as too much. A policy that puts too many restrictions on e-mail content can actually cause difficulties in the work environment.

"If you attempt to monitor everything, it creates a higher standard for the employer," says Ginny Bain, an attorney in the labor and employment section of Smith Helms Mulliss & Moore in Greensboro, N.C. "There was a case against Prodigy a few years ago where they had a moderated chat room, and because it was moderated the company was held liable for slanderous statements that were allowed to be placed in the chat room. So if an employer monitors everything and [offensive material] is still getting by, you as the employer might be held liable for it."

In addition to potential lawsuits and employee morale issues, there are other challenges to implementing and managing a full-fledged e-mail monitoring system. As Jeff Uslan, manager of information protection at 20th Century Fox has found, committing to an e-mail monitoring system requires ongoing company resources including assigning one or more staff members to consistently maintain and monitor the system. "And there can be a lot of paperwork," he adds.

Of course, there may be times when it is inappropriate to use e-mail monitoring technology at all. In cases where companies haven't done everything they can to implement and enforce good management policies, for example, simply turning to one of these tools could mask larger problems in the management arena, according to Rita Risser, an attorney with Fair Measures Corp., a Santa Cruz, Calif.-based executive and manager training company.

"These tools are a bad substitute for good management," she says. "If you treat employees like adults, generally they act like adults. If, on the other hand, you have an out-of-control workforce, inept managers, top-down control and an atmosphere of distrust, these tools will really help."

—K. Schwartz



W H E N Y O U R *e - b u s i n e s s* R E L I E S O N
S O M E T H I N G A S P R E C A R I O U S A S T E C H N O L O G Y ,
C O N T R O L M A Y B E Y O U R M O S T V A L U A B L E A S S E T .

All that technology has done, it can undo in an instant. Which is why nearly all the Fortune 500® rely on us to survive—and thrive—in today's ever-changing, unpredictable environment.

We are BMC Software. The world's leading provider of e-business systems management solutions. Software that keeps your business-critical applications up and running around the clock. We offer the fastest implementation of the most comprehensive e-business management systems. And our exclusive OnSite™ program is your seal of assurance that your e-business will be online, all the time.

For more information, visit us at www.bmc.com. We'll be there.
We're always there.



Assuring Business Availability™





that with regard to e-mail on an employer's property during work hours.

Employees at Bank of America's GCIB are told up front that e-mail is company property and should be used to conduct company business. According to Hendricks, they are also clearly told that not adhering to the policy can result in disciplinary actions, up to and including termination. While Hendricks' staff does not police the e-mail system for abuse, cases that are uncovered in the normal course of maintenance or investigated as a result of complaints brought forward by others are handled accordingly, he says.

But others take a more congenial approach. These employers stress that all measures are taken to ensure a respectful workplace for all employees. In this case, employers might tell employees that e-mail monitoring is simply a way to remind them what is appropriate and reassure them that if they follow company policy, they have

nothing to worry about. "It's important to stress that no one is interested in eavesdropping on private e-mail conversations," the DOE's Smith says.

To make sure all employees have bought into the policy and truly understand it, 20th Century Fox now asks new and long-term employees during their annual review to sign an electronic usage agreement explaining the e-mail monitoring policy. "We let them know that intellectual property is our bread and butter and that their job is to support that intellectual property," Usan notes. In essence, the agreement draws the line at what the company considers inappropriate usage of all electronic media including e-mail, fax, Internet and telephone.

To give employees an additional measure of comfort, Usan tries to make sure that the tools are used in a regulated fashion.

"Instead of using it as a sword that is wielded and swung around wildly, we have

rules in place. In order for the policy to be invoked and for us to start scanning a specific e-mail account, the request has to first go through human resources, be approved by legal and only then is given to my group," he says. "We explain to everyone that we are the only ones who have control of this software—HR doesn't have physical access to it, and neither does legal."

Powerful Tools

The current crop of e-mail monitoring tools on the market enable a company to track all sorts of things including viruses, content and security breaches. Yet just because tools allow monitoring on a wide scale doesn't mean that a company should use them to their full capabilities.

The key, says Fair Measures' Risser, is to use these tools judiciously and in appropriate ways. "I sometimes feel that bad managers will use e-mail monitoring as a way to catch bad employees, because it's easier than being a good manager," she says. Risser recommends monitoring only when a manager suspects the employee of unacceptable behavior.

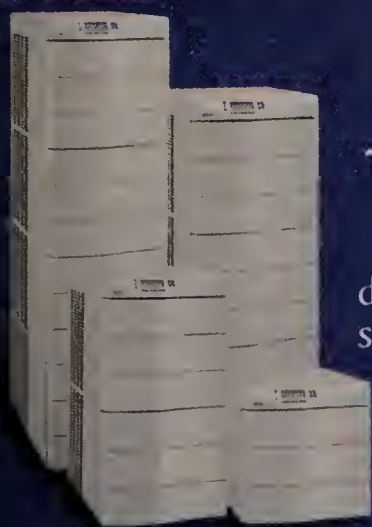
It also pays to remember that no monitoring package is foolproof. There are times when employees might use code words referring to specific projects, for example. In that case, there is virtually no way to catch the thief. In other cases, although the e-mail monitoring package might prevent large executable files from being sent, there is nothing preventing determined employees from downloading the same information onto a diskette and walking out the door with it.

Because of these loopholes, it's important to remember that e-mail monitoring is just one part of a more global concept of data security. "It's like locking your front door and leaving your windows open," says Saga's Valcourt. "It's a matter of making things difficult for employees and putting enough questions in employees' minds." **CIO**

Karen D. Schwartz is a freelance writer based in the Washington, D.C., area. She can be reached at karen.schwartz@bigfoot.com.



At last, a UPS that's as configurable as you are.



Axxium™ Pro.
The Best Solution.™

The new Axxium™ Pro UPS, the Best solution for your expanding network.

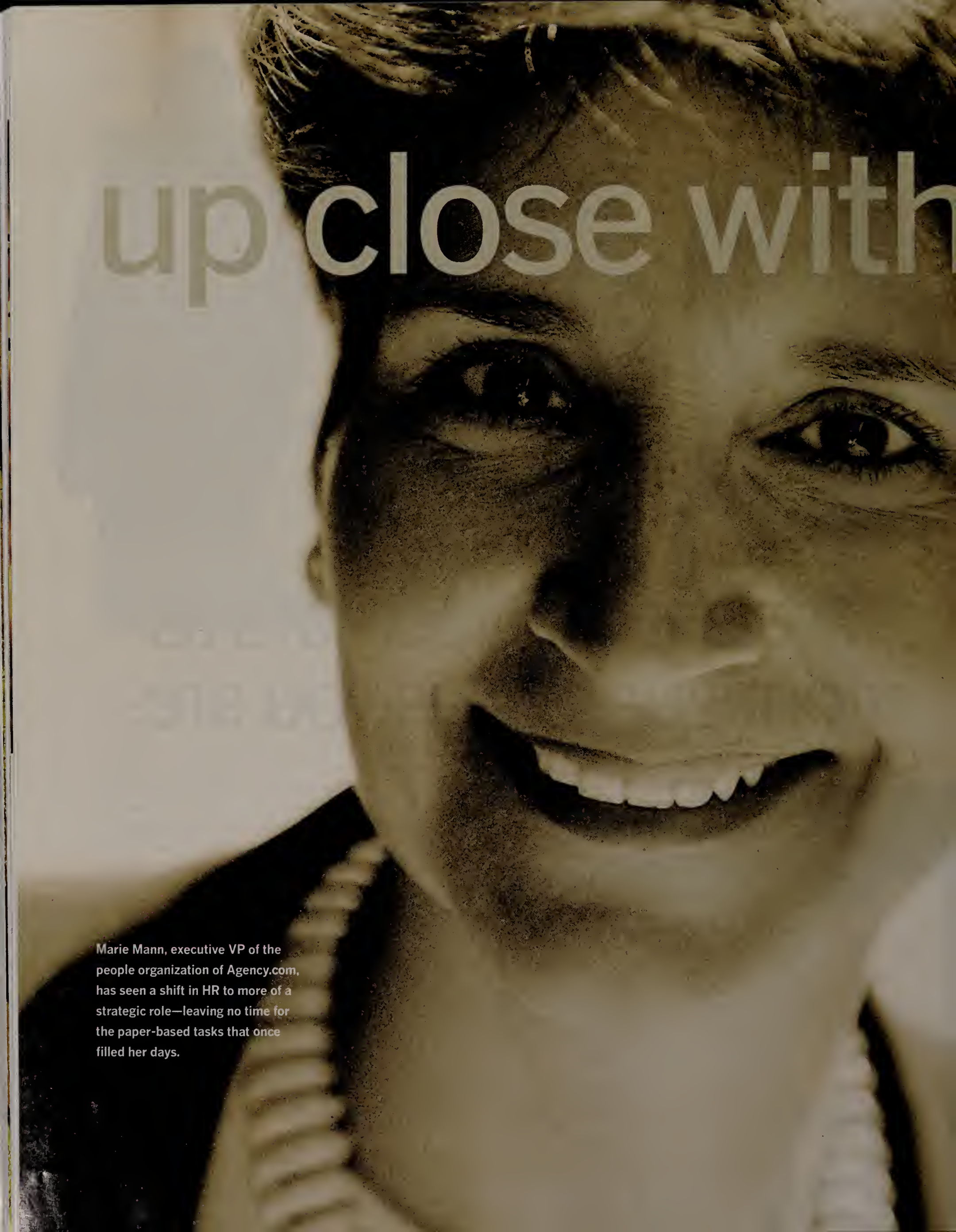
With the Axxium Pro's highly modular design, you could say it's got as many sides to its personality as you do! Each time your network expands, the Axxium Pro can be easily reconfigured to suit the unique demands of your enterprise.

The Axxium Pro combines N+X power and logic redundancy with hot-swappable power and

battery modules, all in a modular design that's scalable from 3-18kVA. Making it the Best flexible UPS solution in the IT space. And the price? It's configured to fit your budget, no matter who you are today. Call or visit our Web site for more information about Best Power's newest UPS system.

www.axxiumprom.com
1.800.469.4842

 **Best
Power.**
UNINTERRUPTIBLE
POWER SYSTEMS



up close with

Marie Mann, executive VP of the people organization of Agency.com, has seen a shift in HR to more of a strategic role—leaving no time for the paper-based tasks that once filled her days.

personnel

The economy is hot, hot, hot, but abundant staffing is not, not, not. Here's why HR, once relegated to the back room, is making its way into the boardroom—and what CIOs can do to help.

BY HEATHER BAUKNEY

When Marie Mann started a new job late last March, she found herself wading through a stack of benefits paperwork on her first day, repeatedly handwriting the same personal data on every form. Mann, executive vice president for New York City-based Agency.com, knows this process well: In her 20-year career in human resources, she and her colleagues have been shuffling such mounds of new-employee paperwork through their departments and on to their final destinations. But a recent trend has seen HR professionals around the globe take on a more strategic role across organizations, leaving them little time for the tasks that once consumed their days.

Reader ROI

- ▶ Learn what challenges HR is facing
- ▶ Understand how the IS department can help HR
- ▶ Discover which software applications are most useful to HR

According to many HR executives and analysts, the shift in the overall focus and everyday workings of the HR department has been profound over the past few years. Personnel—the people who used to spend all day counting heads and updating employee files in the back office—are coming to the fore as business partners, helping their organizations transform and develop in a climate of globalization and competition. Despite HR's evolving role, what hasn't changed is that employee data still needs to be amended and benefits inquiries addressed. While information technology seems the logical slayer of the paper tiger, and human resources information system (HRIS) software and vendors are abundant, many organizations have been slow to adopt such tools. Here's a look at what HR executives need from their CIOs in order to focus on timely challenges and why the pulse of the whole company will weaken if these needs are not met.

"Our CIO and I share a lot of the same concerns in terms of staffing—speed, quality and cost of hires," says Roger Branch, former vice president of HR at Management Recruiters International.



"When I started in HR 20 years ago, it was a very administrative, compliance-driven function," says Mann, who's also worked for Arthur Andersen, Booz, Allen & Hamilton and Saatchi & Saatchi. "Now we need to focus on how we can get the best people in the door and drive up our retention numbers." While she can't stop the headhunters from calling, she hopes her efforts will drive

Agency.com's employees to reply, "No, thanks. I have it good here."

Cortney Lyle, HR director at Atlanta-based eTour.com, empathizes with Mann's plight. "This employee population is much more willing to jump," she explains. "In six years these people will change jobs an average of 9.2 times." While in HR at Budget Group, GE Capital and Ryder TRS, Lyle's response to retention was largely reactive, she says. But at eTour.com, a personal tour guide of the Web, she has to be proactive. In her first seven months on the job, 115 people have joined—and just two have quit. "On Day 1 they jump to us from another company," she says. "On Day 2 I'm asking myself, 'What do I need to do to keep them from leaving here in six months?'"

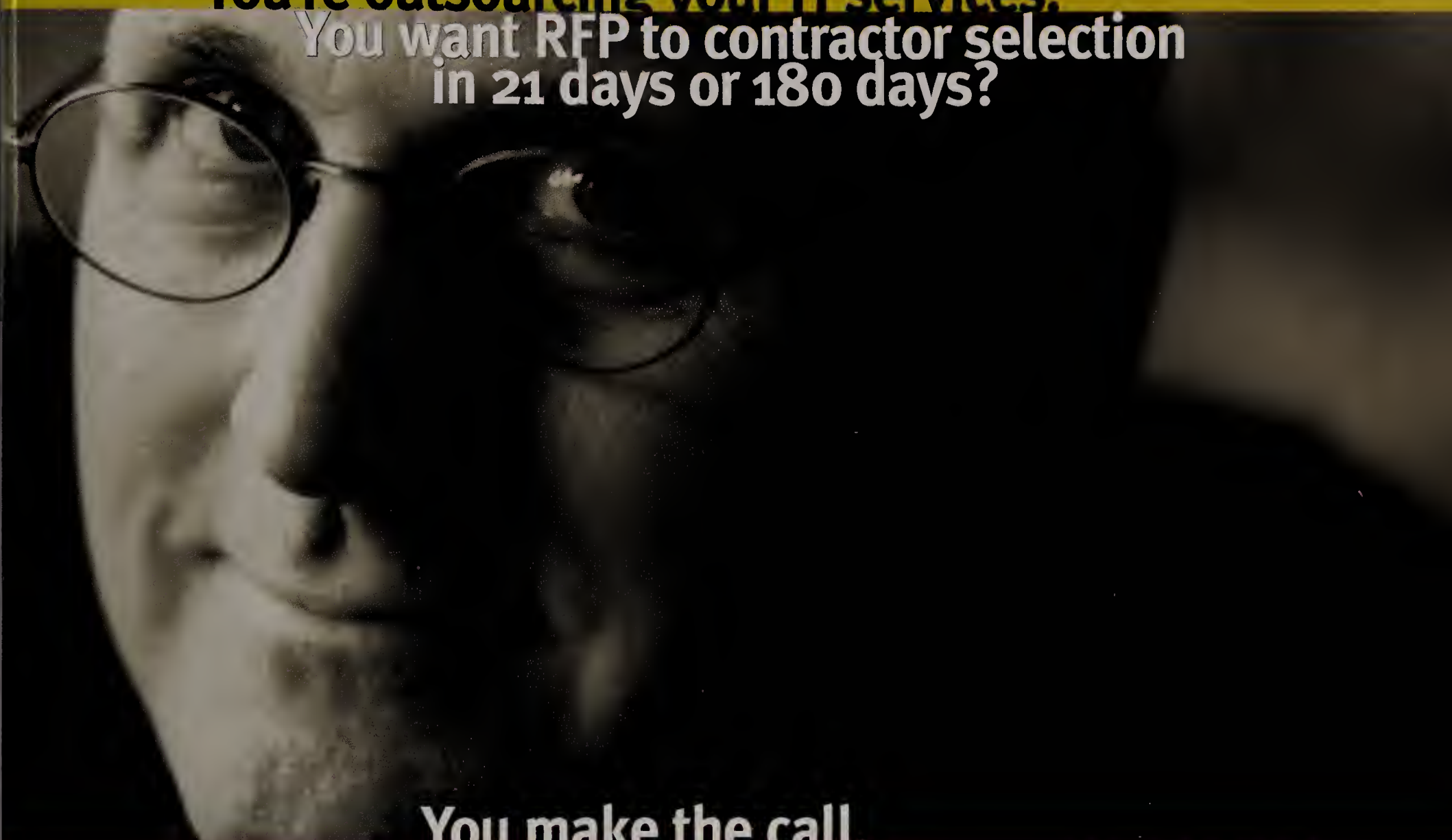
HR Takes a Seat at the Table

The "people are paramount" mantra has spread throughout the entire enterprise so that the issue of retention is not only a priority for HR executives, but for other executives as well. And those executives are recognizing that HR adds more value by crafting culture—not by doing data entry. A recent study by the Center for Effective Organizations at the University of Southern California's (USC)

Marshall School of Business in Los Angeles confirms that a growing number of HR professionals are pulling up a chair in the executive boardroom. The survey of 663 HR executive firms notes a significant increase in the percentage of time they spend as strategic business partners today versus five to seven years ago. And that's because HR executives are now focusing on building their companies' human and intellectual capital.

Lyle says she took the job at eTour.com in September 1999 because it allowed her to create the HR department. "I had to start from scratch and build an HR strategy from the ground up. I have positioned HR right where it should be, and that's at the table." Roger Branch has experienced a similar trajectory as the former vice president of human resources at Management Recruiters International (MRI), an

executive search firm based in Cleveland. "I've been here for about two years, and in that time, the HR role has changed dramatically," says Branch, who has since been named president of an MRI affiliate in Arlington, Va. "Like at most enlightened companies, we're playing a much more strategic role. Our CIO and I share a lot of the same concerns in terms of staffing—speed, quality and cost of hires. I'm not



**You're outsourcing your IT services.
You want RFP to contractor selection
in 21 days or 180 days?**

You make the call.



neoITSM is the high-touch, high-tech digital marketplace providing end-to-end IT outsourcing solutions. Fast. How does 21 days from RFP to

contractor selection sound? And it doesn't stop there. Faster implementation is yours, too. Over 1500 global IT providers working to deliver your project in shorter cycle times. And it gets even better: Competitive global bidding can yield 20-60% savings over in-house IT services using the best and the brightest IT talent on the planet.

neoIT is much different from other outsourcing companies. We are a global neutral marketplace with programs in place to facilitate your IT business processes. The process begins with our proprietary *neoRFP*SM, a bid specification customized to your industry and specific IT project, not a standard template. Then our patent pending technology identifies only the most qualified IT providers for you with *neoMatching*SM and *neoSelection*SM—eliminating months of browsing and evaluating thousands of IT service providers (the ones you don't have, remember?) And *neoCollab*SM gives you complete control of

your project with weekly tracking of milestone completion, conferencing with our experienced project managers and your IT provider in a secure, online project workspace.

The scalable, global resources of neoIT make us uniquely qualified to turn your visions into

working code. No matter what the size of your project or enterprise, the strength of our project administration and management team—available online and/or on-site in a consulting capacity if needed—ensures the success of your project.

All providers you come in contact with will have ISO, SEI-CMM certification or be neoIT verified—because we know when it comes to IT, quality is the difference. So there you have IT—IT solutions from neoIT—the *new* way to do business.

Register online today for your chance to win a \$50,000 outsourced project on us!

www.neoIT.com/cio

eSourcing IT Services GloballySM

doing HR stuff as it used to be." For Agency.com's Mann, this strategic role has meant renewed respect for the HR department. "We're now recognized by the top bananas in a way we weren't before," says Mann. "HR isn't a second-class citizen. We're advisers, confidantes and coaches."

But HR professionals can't move to the front lines without reinforcement, says Edward E. Lawler III, one of the authors of the USC study and director of USC's Center for Effective Organizations. CIOs need to satisfy HR's demands to be free from paper- and labor-intensive tasks. "HR is constantly on the phone with people who are badgering them to make address or benefits changes," Lawler says. There's a lot of potential for change in the HR function in light of recent technologies, he says.

HR and IS Need Each Other

Kathryn Bartol, professor of human resources at the University of Maryland's Robert H. Smith School of Business, agrees. "HR needs to be helping to reinvent the company and concentrating on competitive issues," she says. Bartol is in the midst of a study on IS's influence on the design and delivery of HR activities. She notes that HR executives are tremendously interested in exploiting technology and that CIOs should proceed through this open door. "CIOs and

HR have more in common than they have ever had before," she says. "It's the perfect time for a convergence of thinking."

Neil Fox, vice president and CIO of MRI, recognizes the need for a symbiotic relationship between HR and IS. "A friend of mine who's a motivational speaker asks, 'What makes Disney World great, the characters or the rides?' Both. It would be nothing with just the characters or just the rides." It's the same at effective companies, adds Fox. "Companies without the best people and the best technology won't thrive. And that requires HR and IS to work together." He adds that in the 14 months he's been at MRI, there's been a major shift in both the perception and responsibilities of HR. "Rather than looking for thing-doers," he says, "we're looking for thinkers. And HR needs to understand the greater role of the organization, not just put in a benefits plan." Fox says this way of thinking has created a new loop between technology and HR. "In this candidate-short marketplace, we need to work together to attract, retain, manage and develop our employees."

Despite MRI's strides in this area, Branch admits that the com-

CIOs can't let HR's needs fall to the bottom of the barrel, says David Dell, a research director at The Conference Board.





VIEW →

© 2000 Acer America Corp. Specifications subject to change without notice. Acer, the Acer logo, and TravelMate are registered trademarks of Acer America Corp. and Acer Inc. The Intel Inside Logo, and Pentium are registered trademarks and Intel Speed Step is a trademark of Intel Corporation. Microsoft, Windows and Windows are registered trademarks of Microsoft Corp. The processor may be reduced to a lower operating speed when operating on battery power.

mobility

Small to Medium Business Solutions

Ready to move, improvise, adapt. Acer's TravelMate 600 adds a lot to any small or medium-sized business. Its hot-swappable modular bay comes standard with a 4X/4X/20X CD-RW and supports everything from a 6X DVD-ROM to a second HDD. Want a thin and light notebook with the power to move any business? Acer. We hear you.

TravelMate 600

- Pentium® III processor up to 700MHz featuring Intel® SpeedStep™ technology*
- Disk anti-shock protection system
- 13.3" XGA TFT with 8MB video
- 4.72 lbs. with weight saver module
- Microsoft® Windows® 2000 – Acer recommends Windows® 2000 Professional for business

acer.com
1-800-551-ACER

Acer 

we hear you

pany is just scratching the surface of what technology can do for HR. "We've got the basics down," he says. "But in any position, you want to accomplish more and [implement it] faster. I'd like to have a robust HR system up and running yesterday, but it's not possible." Branch's resignation to incremental relief is echoed by other HR executives. At Becton, Dickinson and Co. (BD), a Franklin Lakes, N.J.-based medical technology company, Vice President of HR Jim Jerbasi confesses to asking the IS department the dreaded question: "Why can't I have it yesterday?" Jerbasi says BD's thrust is toward employee self-service, and that means more attention from CIO Art Levin. "We're trying to give people the organizational tools to manage their careers," he adds.

Jerbasi, who's been at BD for 23 years and vice president for two years, says many of the company's HR programs are IT-enabled. For example, he says, BD University—a training and development program that incorporates traditional training with online training services—is one way IS and HR are partnering to recognize the overall strategic vision of the company. Another example is its Web-based "360 degree" self-evaluation system, which makes continuous performance synopses available online to managers. For the past few years, BD has also allowed employees to select benefits via the Web. "We want people to become more self-sufficient because we just don't have the human resources to do all this," he says. Jerbasi jokes about bribing IS to get noticed. "Our needs in HR change daily," he says, "and I wish they could do things faster, but I understand that there are business needs."

Ray Zaso, managing director and senior vice president at KPMG Consulting's eWorkforce in Radnor, Pa., says recent technology strategies have allowed HR to refocus on more complex issues. But he also agrees there's progress to be made. "We're absolutely taking away administration from HR," he says, "but there are a lot of competing initiatives. I wish it were easier." Zaso says the technology KPMG uses helps streamline a historically fragmented HR organization. "A lot of clients that I've worked with have very siloed HR functions," he says, meaning they have to make simple changes to employee files in a number of different places. He advises those clients to install a centralized system, which would boost the efficiency, accuracy and productivity of the employee and of HR. "We try to eat our own dog food," he says, "so we're very conscientious about leveraging the Net within KPMG." Zaso, who's been at the company for 15 years, is responsible for eWorkforce Solution, a KPMG program that focuses on delivering Web-enabled HR solutions to enterprises.

To describe the indispensability of these capabilities, Zaso gives the personal example of recently needing to change information about one of his dependents. Prior to the Web-based program, Zaso says he would have had to call the HR service center to request a form or download the form himself. "Any of those old-model options would have taken me 20 to 30 minutes, at least," he says. Instead, Zaso went to the HR department's site and made the change online, at home, at 10 p.m. Three separate transactions took him a total of

three minutes. While such strategies empower the individual and allow HR to add more strategic value, there's still ground to cover, Zaso says. "There's an insatiable appetite for more," he says.

A Little Technology Goes a Long Way

David J. Dell, research director for capabilities management and HR strategies at The Conference Board, a nonprofit business think tank in New York City, offers an explanation for HR's growing hunger pangs. "Until now, HR has been able to exist as an island," he says. Not only has technology been used infrequently in the past in most HR departments, but it has been considered a low priority, he adds. In the drive to have HR contribute strategically, Dell has a warning for CIOs. "Since HR has traditionally been perceived as a support function that does not make a direct contribution to the bottom line," he says, "it's very common for their needs to slide to the bottom. [CIOs] can't let that happen." Dell contends that a little technology goes a long way. "IS needs to know that most of the areas where HR needs help are relatively easy to support, and these are very important applications," he says. "They have a long life in the company, a high payoff and are effective on all levels." Dell says the available technology has exploded in the past year or so. "Besides PeopleSoft and SAP," he says, "there are all kinds of niche and Web-based applications for résumé and skills tracking."

But, according to the USC study, just over half of the companies surveyed have automated most or all of their human resources systems. Since the first part of the study was conducted, in 1995, the results have changed only slightly. The study points out that in most organizations HR is going to be a late adopter of IT, perhaps because organizations feel the payback is not as great. "Sometimes HR exec-

HR GLOSSARY

Self-service: A Web-based system by which employees can get real-time answers to their questions and perform transactions online

Competencies: The core skills needed to successfully fill a position

KSA: The knowledge, skills and abilities an employee has to offer

HRIS: Human resources information system

Life event: Any change—marriage, birth, termination, move—that requires an employee's file to be updated

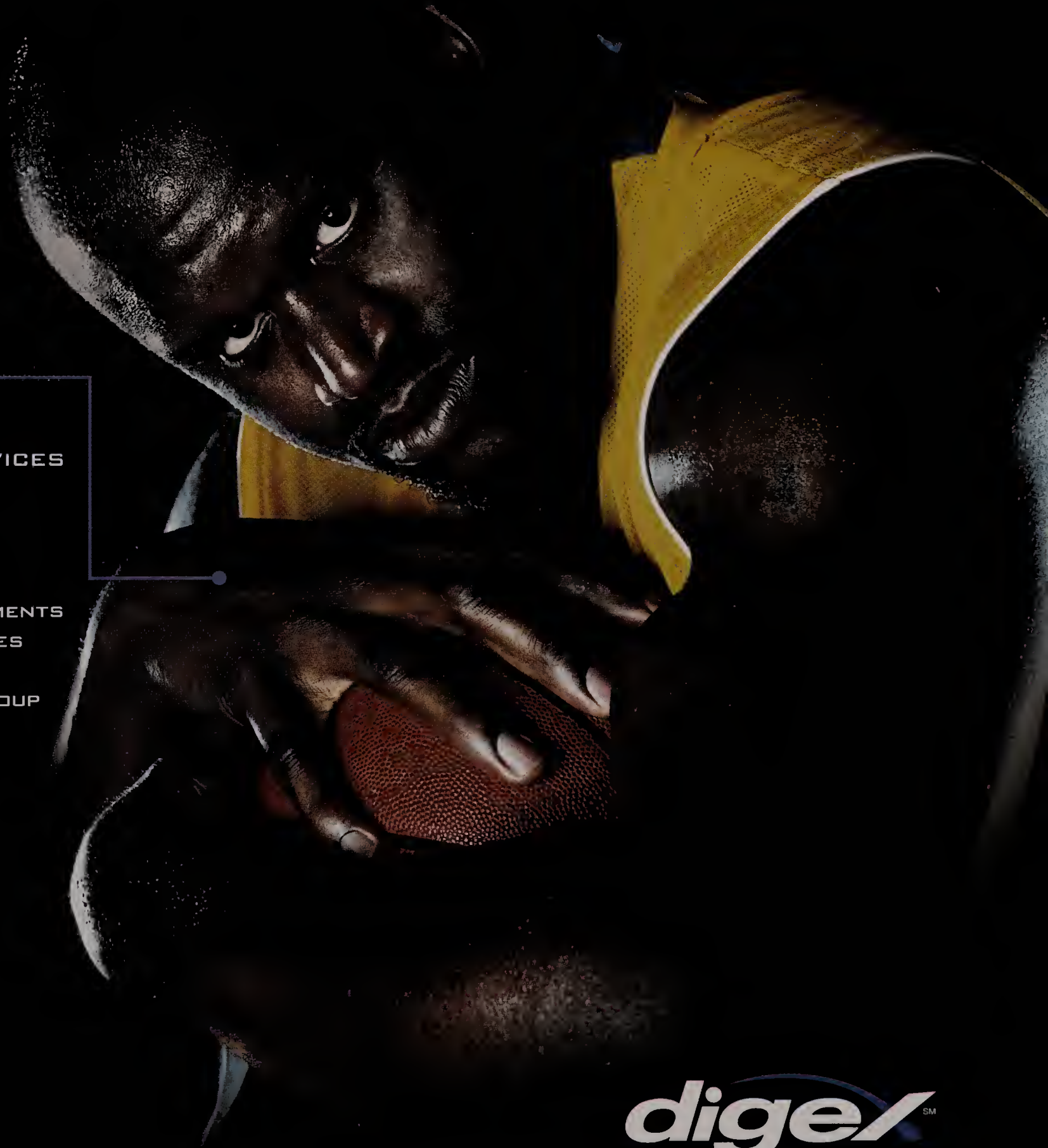
Staffing/recruiting: An HR function in which the representative is responsible for filling open positions

Sourcing: The process of identifying viable candidates, which is becoming more Web-based with résumé-tracking applications like WebHire and ResTrack

DIGEX

MANAGED WEB AND APPLICATION HOSTING

YOUR SITE NEVER FELT SO SAFE



DIGEX SECURITY SERVICES

- SECURED PLATFORMS
- FIREWALL PROTECTION
- DATA ENCRYPTION
- SECURITY SCANS
- VULNERABILITY ASSESSMENTS
- LOCKED DOWN FACILITIES
- MONITORED NETWORK
- DEDICATED SECURITY GROUP
- SAS70 CERTIFIED
- TRUSECURE CERTIFIED



DUNK.NET
SHAQUILLE O'NEAL

digexSM

Digex | keeps e-business in business™

www.digex.com/authority 1-888-344-3903

Where managed hosting began.
Where managed hosting is going.

utives have difficulty articulating how the benefit of an expense on their behalf is going to translate to the bottom line," explains the University of Maryland's Bartol. "The impact is often hidden." USC's Lawler says this often results in tension between the two sides. "There's a lot of friction between CIOs and HR about the priority the HR system should be given," he says. "In the end, HR applications are just not a high priority."

Agency.com's Mann knows all too well this second-fiddle frustration, which she says she experienced at a former employer. "You could fight about it until you were blue in the face," she says. "But getting money for technology in HR was just not viewed as important." Her experience so far at Agency.com has been much different. "Here, no one fights and says, 'No you can't have this. It's not important,'" she says. According to Mann, Agency.com's executives understand how automating HR will allow her to focus on front-office initiatives and will ultimately make the company more competitive. She cites Agency.com's efforts to work toward streamlining

Cortney Lyle, HR director of eTour.com, says she has positioned HR right where it should be: at the boardroom table.

HR processes with the goal of making all of the HR administration Web-based and remarks on its "huge investment in PeopleSoft." (A recent study by the Society for Human Resources Management found that among 774 HR professionals, PeopleSoft was the most widely used vendor of HR management technology.) She says the company's new-economy employees expect this convenience and consistency. "Handing someone a paper application would be incongruous," says Mann.

Like Mann, eTour.com's Lyle is confident the company's executives, including those in IS, understand the importance of liberating the HR function as much as possible with IS's help. Although eTour does have an HR intranet up and running, Lyle is still trying to identify which HRIS package would best suit the company. "There are no limitations here on what is spent to find talent," says Lyle. That has a lot to do with hindsight, she says. "Most managers here have seen the consequences of HR neglect," she says. "If you're dealing with people who have never felt the pain of it, those are the hardest people to sell." Eric Fliegel, CIO of eTour.com, says he's working at knocking down the walls that have historically been erected between HR and IS. "It's very easy to forget about HR's needs," he says, "but you pay dearly for that." When HR's cries go unanswered internally,



Ever wonder how those
people who have all the answers
got all the answers?

Chances are, we had something to do with it. Fact is, 98 out of the FORTUNE 100 count on business intelligence solutions from SAS to explore information, better understand customer and supplier relationships, predict behavior, and unlock hidden opportunities. Today, SAS is leading the industry in bringing this same level of intelligence to the world of e-business. With e-Intelligence from SAS, you can capture, analyze and react to data gathered at any point of contact. And then just as quickly disseminate new findings to anywhere they're needed across your extended enterprise. To get the answers you're searching for, call us today at 1-800-727-0025 or stop by www.sas.com.

The Power to Know.™



he says, HR will often call in an outside IT person whose only concern is solving the immediate problems. "It's easy to understand because they get fed up," says Fliegel, "but two or three months down the line they're stuck with a system that won't scale. Then they're embarrassed when they call us. The end result: animosity." Instead,

At eTour.com, CIO Eric Fliegel is focusing on an HRIS package because HR is one of the cornerstones of where the company is going.



Lyle's and Fliegel's offices are next to each other, and the pair make it a point to meet a few times a week. "We're trying to put an HRIS system in place so that Courtney can do her job, because she is one of the cornerstones of where this company is going," says Fliegel.

A New Focus for HR

Martha Stephens, executive vice president for people at Zefer, is insisting on a comprehensive HRIS package at the Boston-based Internet consulting and services company. She says that attending to the most basic motivations of employees—making sure they're feeling challenged, satisfied and valued by their colleagues—is where HR needs to focus its energies. "When I think what occupies my days now versus years past," she says, "recruiting and retention issues are on top. My expectations are that we'll have an infrastructure to support that." While the company has just hired a director of IT, Stephens says she knows what she wants out of the relationship.

"We need a philosophical alignment about our management practices, and that can happen only when HR and IS work together." The proof for her so far has been Zefer's decision to outsource the labor-intensive payroll function. She is also impressed by the leadership's early investment in the pricey PeopleSoft and PeopleClick (a sales-management tool for the recruiting process) applications. "Never attempt to do HR without this sort of system in place, otherwise it gets out of control so quickly," she warns. In the year it has been in business, Zefer has grown from 25 to more than 600 employees. Stephens,

who previously headed HR at IDG (parent company of CIO's publisher, CXO Media), says investing in technology for HR is part of building a platform for growth, part of showing your employees you believe in where you're going. She was pleased the company had the foresight to plan ahead for fast growth by making an HRIS system a priority, even when Zefer had only 25 to 30 employees. "If I were still at IDG—a billion-dollar company—I would still be begging for a technology allocation," she says. "Do we really want to spend that kind of money on HR?" they would ask." In this high-tech needs, high-touch world, yes, absolutely, says Stephens.

The Conference Board's Dell cautions CIOs against giving HR the backseat. Like many HR executives and experts, he recognizes that HR is not turning back. The dramatic changes are altering how employees

at most companies get information about their benefits, performance and development. He says that CIOs who have cast aside HR's needs have to think again. "They need to get their heads on straight and understand that [HR's role] is...changing very quickly," he says. "Companies are seeing big paybacks from speed to recruiting and by achieving performance goals. To deny HR its IT needs is a big, big mistake."

Agency.com's Mann says that when HR is not enabled as a true strategic partner, "people slide down a slippery slope and out the door." Then when a headhunter calls with a better offer, you lose all return on your investment. "All we have at the end of the day is people," she says. "HR needs to be thinking about how we do the right things for them. We need to be freed up in order to drive that change." **CIO**

What tools have you installed for your HR department? Let us know at letters@cio.com. Heather Baukney is a freelance writer based in Cambridge, Mass.

Small-scale UPS quality that makes you say, "Wow."



A pricetag that makes you say, "How?"

PowerSure[®] Direct

The experts who brought you 1,000,000 hours MTBF UPS reliability have found a way to reduce the price you'd expect to pay for a small-scale UPS by up to 20 percent. How do we do it? It's simple – we allow you to buy manufacturer-direct through the Liebert website.

And while the pricetag is low, the quality is not. The expertise that has made Liebert an industry leader in 3-phase power protection for over 30 years has been engineered into our 300-2200 VA PowerSure UPSs. You can get a full-featured UPS, with 12 minutes back-up battery at typical load, buck and boost voltage circuit, and multiple outlets for clustered equipment. You're also backed by Liebert's worldwide support and service.

That's how we put the wow in each PowerSure UPS. Visit www.liebert.com for complete product specification and ordering information.

 **Liebert[®]**
KEEPING BUSINESS IN BUSINESS.[®]

800-877-9222 dept. PS3
www.ps3.liebert.com
info@liebert.com 

STAR makers

How one company gets bravura performances from supporting players

Most companies try like hell to hire the most outstanding performers, the cream of the crop, the all-stars. Some even have this goal formally stated as corporate policy. The unfortunate mathematical fact is that only 10 percent of the people are going to be in the top 10 percent. There just aren't enough stars to go around. So companies have a choice: They can all chase the same scarce talent, or they can do something even more useful and much more difficult to

PHOTOGRAPHY BY JOHN CHAISSON



Few environments are as safe and secure as our Internet Data Centers.

Free Installation* | Protecting your business applications is critical in today's Net economy. **1-800-932-3858** | FirstWorld's Internet Data Centers provide the reliability, security and performance you need – whether using your enterprise network or the world of the Internet. Our IDC colocation facilities provide built-in redundancy, scalability and high bandwidth connectivity for around-the-clock reliability and performance. Other features include 24 x 7 x 365 security with on-site guards, closed circuit surveillance, remote monitoring and custom cabinet and cage configurations. To find out more about how you can host your eBusiness applications in a world-class secure environment and reduce your eBusiness costs at the same time, call 1-800-932-3858 and schedule a personal tour of one of our IDC's. Or check us out at www.firstworld.com.

High Speed
Access

[Internet Data Centers](#)



Managed Services



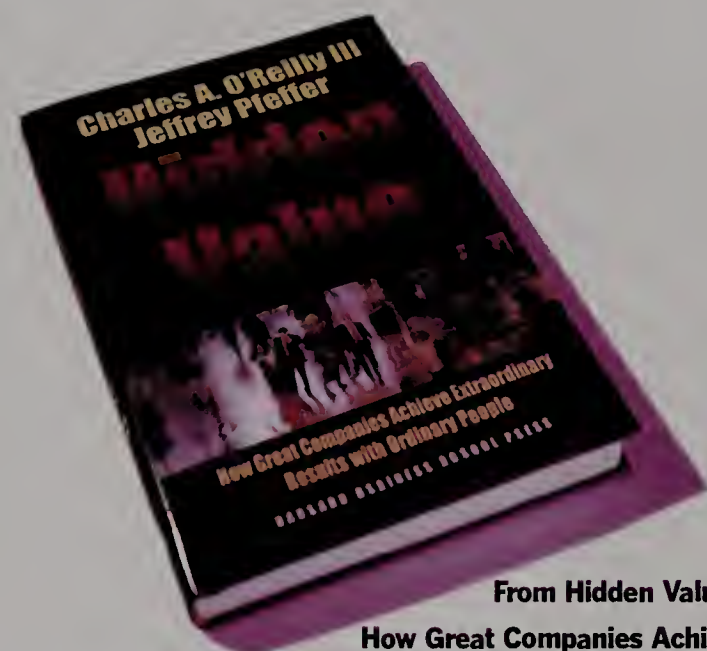
FIRSTWORLD™

As e-real as it gets.™

Local IDC Sales Offices: Dallas, TX 972-889-3688 • Denver, CO 303-874-8010 • Glendale, CA 818-649-5900
Houston, TX 713-528-2400 • Irvine, CA 949-784-4000 • Portland, OR 800-639-4488 • Salt Lake City, UT 801-572-9202
San Diego, CA 858-552-8010 • San Jose, CA 408-280-2300



*Minimum 12-month contract required. Offer subject to change without notice. Restrictions apply. Limited credit amount available. Contact FirstWorld representative for details. © 2000 FirstWorld Communications. FirstWorld and FirstWorld logo are registered trademarks of FirstWorld Communications, Inc. Sun and related logos are registered trade names and/or trade and service marks of Sun Microsystems, Inc. Cisco and related logos are registered trade names and/or trade and service marks of Cisco Systems, Inc.



From **Hidden Value:**
How Great Companies Achieve

Extraordinary Results with Ordinary People

By Charles A. O'Reilly III and Jeffrey Pfeffer.

Harvard Business School Press, 2000, \$27.50

copy—build an organization that helps make it possible for regular folks to perform as if they were in the top 10 percent.

Explaining how to do the latter is the premise of *Hidden Value: How Great Companies Achieve Extraordinary Results with Ordinary People*, by Charles O'Reilly and Jeffrey Pfeffer. These Stanford University professors of HR management and organizational behavior provide detailed case studies of eight companies that are pulling off this neat trick, including The SAS Institute, Southwest Airlines, Cisco Systems and, presented here in abridged form, medical products distributor PSS World Medical.

PSS World Medical headquarters is located on the top two floors of an ordinary-looking building in an office park just off a busy freeway on the outskirts of Jacksonville, Fla. The lobby, although pleasant, decorated in dark wood paneling with comfortable furniture, is not showy. A small shelf contains a few of the medical supplies the company distributes to physicians, and an interior staircase leads to the fourth floor. Even the people, at first glance, seem like pleasant and friendly, albeit regular, people. Few have graduated from elite educational institutions—there are a lot more people from Florida State than Harvard—and the firm hasn't hired MBAs. Pat Kelly, the company's founder and CEO, has commented, "We've tried to hire MBAs, but they've all failed. They're too structured, too hard core in their beliefs that they've got the answers."

Certainly no one would mistake this for a Wall Street investment firm, a prestigious consulting practice or the bustling center of a high-tech startup company. What is extraordinary about PSS, however, is its history of growth and financial performance, all built with ordinary people working in a highly competitive, low-margin industry—the distribution of medical supplies—who have performed in a most extraordinary way.

PSS World Medical offers a couple of mysteries as we seek to understand how companies are able to accomplish extra-

ordinary things with their people. First, the company operates in one of the most fiercely competitive industries in the economy—distribution. It is an industry undergoing constant change as both evolution and revolution in supply-chain management continue. The company has been very successful, nonetheless. As of late 1999, its five-year growth rate in revenues was 52 percent, and its five-year growth rate in earnings per share was 31 percent. PSS World Medical's return on equity, return on assets and profit margin were all more than twice the industry average. But if you look at the company, nothing about it seems exceptional. How has it achieved such great results?

A second mystery also exists. It is well known that rapid growth strains companies, particularly companies that have strong cultures. Assimilating lots of new people and imparting the company's values and practices are difficult. Simply managing the logistics of growth in terms of the demands on facilities, systems and finances is taxing. That is why managing hypergrowth is considered to be a substantial managerial challenge. PSS World Medical has grown extremely fast virtually since its inception—a rate of almost 60 percent per year compounded. For instance, it went from \$170 million in sales in 1993 to more than \$1.5 billion in 1999. How has PSS World Medical been able to successfully manage this rapid growth?



WE'VE GOT JUST ONE SMALL DETAIL FOR YOU TO CONSIDER WHEN YOU PLAN FOR BUSINESS CONTINUITY.

WHAT HAPPENS WHEN PLAN B FAILS?



SUNGARD® SECURE
THE NET BENEATH YOU.

It could be a fire. The worst storm in decades. Or a deadly virus. But when it hits, it could knock out your system for hours, even days. And you know how much that could cost. Unless you have the right business continuity plan in place. SunGard can help, with a range of highly responsive, surprisingly affordable options. (You will even spend less on a pre-configured SunGard recovery package than you would to buy a backup server.) And now we apply our disaster recovery experience and aggressive pricing to your other critical business needs. With SunGard's Internet and high-availability services, the people who need it always have access to your company's information. Call us or visit us online now. **YOU'LL GET OUR POPULAR WEB SITE GUIDE, e-PERFORMANCE, FREE.** Then relax. When plan B fails, SunGard won't.

**1-800-468-7483 EXT.246 OR
WWW.SUNGARDPLANB.COM/CIO**

SUNGARD®

BACKGROUND

The Business

Founded by Pat Kelly as Physicians Sales and Service in 1983, PSS World Medical is a specialty marketer and distributor of medical products to physicians, alternate-site imaging centers, long-term care providers and hospitals through more than 100 service centers to customers in all 50 states and five European countries.



In 1983 **Pat Kelly** founded PSS World Medical as Physicians

Sales and Service, a specialty marketer and distributor of medical products.

In late 1998 the company employed about 4,500 people and operated a fleet of about 1,000 vans and delivery vehicles. Approximately 50 percent of its sales were in the physician supply business, with about 25 percent in both the long-term care and imaging markets, and only 2 percent internationally. The markets in which PSS World Medical operates are extremely competitive. There are about 200 locally owned companies serving the physician supply market, 300 locally owned companies serving the imaging market and 100 locally owned companies serving the long-term care market; a number of large national firms also compete in these markets. The

industry has experienced rapid consolidation in recent years, reflecting government regulation and the cost containment pressures in health care.

Strategy

The PSS strategy has two core elements: rapid growth and differentiation based on outstanding customer service, and a very broad product line with exclusive distribution agreements with a number of suppliers. Founder and CEO Kelly sees growth as critical for future success and has, from the beginning of the business, established audacious goals for the company. In 1988, when PSS did \$20 million in business with 150 employees in seven branches, he set a goal of becoming the first national physician supply company. In 1993, with sales of \$170 million, Kelly set a goal of doing \$1 billion in business by 2000. Now, PSS World Medical seeks to be a world distributor of medical products.

By setting audacious goals, Kelly doesn't mean just financial targets. In his view, real goals have to do with accomplishing something meaningful, something that gets people's juices flowing. He notes that coaches of sports teams don't motivate players by setting goals for percentage of shots completed or time spent on offense. They convey the idea of winning. He acknowledges that although there may be differences of opinion about strategies and tactics to attain the goal, there must be absolute clarity and agreement about what the goal is. This focus is critical in a fast-changing marketplace. Without this, it's easy to veer off track.

Whereas most of its competitors distribute products through common carriers such as UPS, PSS provides same-day service to all of the customers it can reach through its branch network. To deliver outstanding customer service, decisions are decentralized. Delivery drivers have business cards with their names

and "CEO" on them, because Pat Kelly believes "when you're standing in front of the customer, you are the CEO."

PSS's customer service relies on a proprietary information system, the Instant Customer Order Network (ICON). This system permits salespeople to write up and transmit their orders immediately after visiting the customer, not just at the end of the day, thus improving delivery service. The system also provides salespeople the ability to manage their business by giving them the information to check a customer's buying history, see what the gross margins are, and so forth, all from their portable personal computers. Warehouse employees also understand the



It's the deepest source of
IT information you'll find
anywhere, featuring content
from CIO and seven other
trusted publications and Web
sites. On the ITworld.com
Network, you can drill down
as far as you want. To get
exactly what you need to
help solve enterprise IT prob-
lems. Evaluate the latest
products. Network with
other IT professionals. Even
find new hires, or a new job.
www.ITworld.com

**the IT problem-solving
network™**

ITworld.com
NETWORK

CIO | Computerworld | InfoWorld | JavaWorld
Linux World | Network World | SunWorld

an IDG
company



importance of inventory management and of meeting customer requirements (no out-of-stock items). Drivers are taught not simply to rush into the customer's office and dump the package, but to know where the supplies go and to help unpack and shelve the items. A driver commented, "When I walk in, I like to spend a few minutes with them, asking if everything is OK, because if there's something special, then we want to do that."

In describing his approach to strategy, Kelly distinguishes between understanding the business you are in and understanding your business model. The former refers to your industry; the latter is how you do business. For Kelly, this means the kind of company you create and what kind of value you bring to the customer. He maintains that Diagnostic Imaging's business model is identical to the PSS model: setting a service standard higher than anyone else's, putting in place systems to guarantee those service commitments can be met, and

why people can't perform. I became a devout believer that we are not going to have a lot of things in writing." He sees his job as eliminating the "corporate arthritis" that sets in when bureaucracy takes over.

This translates into several unique features within PSS. First, there are no policy manuals. The company emphasizes personal communication rather than putting things in writing. The company's policy guidelines are written on a large, colorful fold-out brochure called "Rules of the Game." The sheet describes guidelines in seven areas: equal opportunity; sexual harassment; rules of conduct; alcohol, drugs and firearms; absence of unions; guidelines for leave and holidays; and complaint resolution procedures. Second, there are no memos. Kelly's rule is that everybody is required to read the first memo they get each month and none thereafter. This means that if you need to send a memo and want to ensure that it's read, you stay up until midnight on the last day of the month and send your memo.

PSS has a relatively lean corporate staff: seven people in the corporate human resources department, a three-person business development group looking for acquisitions, corporatewide

Everybody is required **to read the first memo they get each month and none thereafter.**

managing in ways such that people have fun, learn and grow, and share in the wealth. The secret to diversification without losing focus is to enter a new business without losing your business model. This means understanding how each business is different and not blindly copying every procedure.

ORGANIZATION AND MANAGEMENT PRACTICES AT PSS

Organizational Structure

PSS World Medical has a flat organization consisting of three divisions (PSS Medical, Diagnostic Imaging and Gulf South) and a small corporate headquarters. There is no written organizational chart. The company's structure is similar to many geographically structured U.S. distribution firms. Each division consists of a small number of regional units (typically three or four) that oversee the separate branches or service centers.

Each branch is equivalent to a small business, with its own P&L, responsibility for gross margin, and complete discretion to set prices and determine its operations. All this is pretty standard stuff. But it is what is not on paper that makes the organization of PSS different. In describing how PSS is organized, Kelly begins by saying, "I've always been bothered by structure. I'm bothered by how structure will become an excuse for

financial reporting (although each division has a controller and financial staff) and a corporate development department that includes PSS University. Kelly believes that staff should have line experience and should serve, not direct, the front-line people.

Recruiting and Selection

Finding the right people with the right attitude and values is important at PSS. PSS does recruit some experienced salespeople and experienced operations people, including truck drivers, from other companies. But its preferred recruiting pool is right from school. Because PSS is headquartered in northern Florida, many of its sales representatives come from Florida schools, such as Florida State. The company for the most part has not recruited from elite institutions or sought out people with graduate degrees. In fact, credentials aren't very important in the company. Gene Dell, the president of the PSS division, does not have a college degree. The downplaying of formal credentials is partly because the nature of the business—sales—probably won't appeal to people with elite or advanced degrees. Nor would the company's practice of starting almost everyone in operations. Moreover, PSS leaders believe that much of what the company needs to do to be successful is best learned on the job or at PSS. Because the company tries to get people early in their careers and has grown rapidly, it is a relatively

**We produce power systems
that keep pace with your business.**

Times are good. Business is growing. But could that success cause you problems?

Potentially yes. If, that is, you have to physically relocate because you can't upgrade your power systems.

In this day and age, you need smaller, more powerful units. Ones that will prove to be increasingly robust in an ever decreasing footprint.

Which is why you should take a good look at



our Rack and Stack systems from Powerware, Lambda, Intergy and Hawker. They can provide you with all the power, backup and power conversion your business will need.

And as they build up rather than out, you won't find yourself outgrowing your company's potential.

If you'd like to keep pace with all our products and innovations call 001 919 870 3000.



Invensys™
Technology for an intelligent world.

young organization. The average age of PSS employees is 35.

Recruiting is based in large measure on personal referrals. Michael Weise, operations leader at Jacksonville, commented: "I don't use newspapers. Our recruiting is word-of-mouth. What I try to do is promote my company so much that people actually enjoy being here...make it fun so that they tell other people. And so when I'm looking for somebody, I normally go right to the drivers and say, 'I'm looking for a position. Does anybody know anybody? If you do, just let them call me.' And boom, we fill the position."

Jane, a driver in Jacksonville, was recruited by someone who worked at PSS, and she took a pay cut to join the company. Many of the sales representatives come to the company through personal networks. Salespeople calling on hospitals or physicians' offices naturally meet others working for the com-

a company of CEOs, you have to hire people who are capable of becoming CEOs.... You can teach people how to accomplish great things. It's much harder to teach them to want to accomplish great things."

No one is hired at the company until that person is interviewed by an officer. The hiring process takes six to eight weeks. One of PSS's methods is not to call people back for interviews. After the first recruiting contact, candidates are given a phone number to call for a follow-up interview. If they don't initiate the contact, the process ends. Next, the applicant will go to a local branch for interviews. Even if this interaction is positive, people from PSS will not call back. Rather, at the end of the interview, the candidate is invited to contact the manager of another branch. This requires more initiative and provides the opportunity to further evaluate the candidate. And so the

PSS tests **job candidates by** requiring them **to advance the interview process.**

petition. They learn who is good and who would fit the PSS culture; this informal network is an important recruiting method. The company also recruits on college campuses, occasionally uses agencies and obtains people when it acquires companies. Nepotism is not discouraged, and people will get not only their friends, but also their relatives to apply for jobs.



Charlie Alvarez, vice president of corporate development, says, "We hire people like ourselves. I like to be associated with people who are ambitious, driven, competitive, athletic.... I don't care how good a sales rep is, how much money he drives into the branch, if he's negative and brings the branch down, that person is going to get a talking to." Recruiting for attitude or fit is important. As Kelly put it, "If you want to build

process continues through several more rounds. The company wants to see if people are interested enough, entrepreneurial enough and aggressive enough to pursue the job opportunity on their own initiative. Often interviews will be done on Saturday to see if the people will come in, and if they do, if they are hung over from Friday night.

Early in its history, PSS hired with less care and relied on washing out the new hires who didn't fit or weren't working out. But people realized that this wasn't cost effective, and so the company developed a behavioral interview guide. The guide consists of a series of about 30 questions each interviewer can use for screening applicants, along with suggestions to the interviewer about what to listen for in the answer. The interview begins with some questions to break the ice and then moves to more revealing questions, such as what type of relationship the person wants with coworkers (PSS is looking for people who want more than just a business relationship). Interviewers also ask what a candidate finds attractive about sales (they look for independence and a desire for unlimited earning potential and are wary of answers that emphasize "talking to people").

Training and Career Development

Kelly believes that if a company's whole competitive edge is built on doing things differently, it follows that training in how to do things is a critical first step. In 1991, the company brought all its training activities together under the rubric of PSS University. Prior to that, training had been done in the branches. Putting its money where its values are, PSS spends about 5 percent of its payroll budget each year on training, an amount that is now about

AUTOMATING THE INFORMATION AGE



Autonomy

Manage your e-mess.



*Solutions for Automating
Corporate, E-Commerce, and
New Media Portals*

There's a name for the Web pages, emails, and documents overwhelming your company: e-mess. And buried in the e-mess is business-critical information — the currency of the information economy. Fortunately, there's a way to make sense of it all — automatically. It's called Autonomy.[®] The only solution that personalizes, categorizes, links, and delivers the gold buried in your e-mess. No more manual tagging. No more junk-laden keyword searches. Just critical information delivered instantly and automatically. Reduce costs, optimize efficiencies, and clean up your e-mess. Get the only solution that automates your e-world — Autonomy. www.autonomy.com
Manage your e-mess. Call 1-877-243-9955 to get a free demo CD and information on a seminar in your area.



\$5.4 million. Kelly says that in a sales company, training is the firm's research and development. In 1999, about 1,000 people went through

PSS University.

The company has an orientation program for new hires. People are also expected to attend various other training classes as a way of becoming acculturated and of meeting others in the company, building enduring social relationships in the process.

Training at PSS World Medical has several unique aspects. First, its sales training is different from what most medical supply companies do. New sales recruits attend PSS University upon joining the company (previously, trainees spent time in the field before attending the university). After an orientation week, "there's 12 weeks of field training during which they shadow veteran reps" and, Kelly says, they "do all the manual work we can push on them"—from cleaning bathrooms to driving trucks to stocking warehouse shelves—to learn how the company works from the bottom up. Then it's back

a lot of questions. PSS distinguishes "teaching" from "learning," and emphasizes acquiring skills and knowledge by confronting hypothetical situations and by sharing knowledge with others. For instance, in Creativity Week, the company will run more than one section during the week. A student from the day before becomes the teacher for the material the next day.

At PSS World Medical, there is an emphasis on promotion from within and moving people around to different divisions and different roles. For example, Weise, who has been with the company nine years, began by training in Dallas and driving a van and working in the warehouse. Then he moved into sales in Dallas and subsequently sold in Phoenix, Ariz. He then moved to operations. People move from headquarters to the field and back. There is increasing movement across the divisions. This provides people more opportunity for learning and advancement. The idea is to learn the various aspects of the company and its operations by doing them all. Almost everyone who starts at the company, particularly those hired right out of school, begins by driving trucks, selling and becoming intimately familiar with the work of PSS.

Moving into leadership is very much a voluntary decision and one that requires sacrifice, particularly in the sales track. As one leader commented when asked why people wouldn't want to move up to leadership roles: "It means giving up freedom. The sales rep has a lot of independence. The sales rep

PSS spends **about 5 percent of its** payroll budget **each year, about \$5.4 million, on training.**

to PSS University for two weeks of sales development training."

Most companies train their people in product information. PSS expects training at the branch to provide the necessary product information. Instead, sales training at PSS University uses role playing to emphasize selling skills.

In addition to sales training, there is Creativity Week—about 150 people went through that program in 1999—and leadership training. The training experience not only imparts knowledge (people are exposed to various books, such as Stephen R. Covey's *Seven Habits of Highly Effective People*) and skills, but also creates bonding among the participants. People stay at one of four corporate apartments instead of at hotels, or they will stay at the homes of people who staff PSS University and even at the homes of officers. Even if they don't stay there overnight, they will have dinner with each other and with corporate officers. Another unique aspect of the training is the emphasis on peer learning, discussion and teaching as a way of learning. The instructors don't do a lot of talking, but instead ask

has ultimate control of his or her financial gains versus a sales leader who has to depend on other people." Moreover, leadership in PSS World Medical means something different than in many other companies. "In other companies, moving up to a leadership role, you become more powerful, your income increases. In our company, going into leadership means you're giving up income. You're actually losing some job security because you tend to get moved around a lot more. And what we get is people going to leadership for the right reasons and not going into it for a pay increase. They do it for the challenge, and they do it for the internal drive and their interest in helping other people be successful."

The leadership selection and development process begins when a successful branch employee who wants to become a leader volunteers for a one-week course conducted at PSS University. After an intense week during which attendees discuss 50 real-life leadership problems and receive plenty of feedback on their strengths and weaknesses, the individual must decide

Oh My, What Big Forms You Have!

*It'll take me
forever to get
to grandma's
house!*

http://toGrandma'sHouse.com

To get toGrandma'sHouse.com, please provide the following information:

Name: _____
Address: _____
City/State: _____
Country/Zip: _____
Company Name: _____
What big eyes you have. Are they better to:
☒ See you with
☐ Stare at you with
☐ Watch reruns of I Love Lucy with
What big teeth you have. Are they better to:
☐ Smile at you with
☒ Breathe you with
Desserts Included: _____
Tablecloth Pattern: _____
Napkin Description: _____
Condiments Included: _____
Dun & Bradstreet#: _____
Date of Birth: _____
Father's Maiden Name: _____
Grandma's Name: _____
House Description: _____
Trail Location: _____
Woods: _____
Favorite Foods: _____
Grandma's Birth Date: _____
Grandma's Dress Size: _____
Grandma's Bonnet Size: _____
Grandma's Home Phone: _____
Email Address: _____
Web Address: _____
Marital Status: ☐ Gray ☐ White ☒ Blue
Hair Color: ☐ Pine ☐ Oak ☒ Oak
Rocking Chair: ☐ Pine ☐ Oak ☒ Oak
Big Bad Wolf Forms

**ActionPoint
Leads You
Out Of The
Woods.**

The ActionPoint Interaction Management System chases away the scary forms that frighten visitors from a web site. Compelling dialog gathers the information you need without intimidation. Like a wolf in sheep's clothing, powerful interaction management tools present a friendly, painless, engaging web experience.

Call today or visit our web site to find out how the ActionPoint Interaction Management System can help website visitors make it to grandma's house unscathed.

ACTIONPOINT™

Where People Interact With eBusiness™

www.actionpoint.com

Nasdaq: ACTP

World Headquarters:

ActionPoint, Inc.
1299 Parkmoor Avenue
San Jose, CA 95126-3448
Phone: 800.371.3783

whether he or she really wants a leadership position. At this point, about 40 percent of candidates recognize that being a leader isn't for them and return to sales positions. The others make the decision to become a leader for the "right" reason; that is, they choose to become leaders for the responsibility and challenge it provides, not because they were selected or see it as a way to make more money. After this decision, all future PSS leaders then attend a second one-week training session, called Creativity Week, which entails spending three days with PSS senior leaders in intense discussions about 50 real-life problems faced by PSS leaders.

Rewards

PSS has a clear compensation philosophy: The wealth should be shared, but shared in such a way that people earn what they make and then get to keep what they earn. There is never a cap placed on sales representatives' commissions. When a salesperson joins the company, at first he gets paid mostly on a base salary. Each month, as the person learns more about the business and selling, the base salary goes down and the commis-

the branch's net income exceeds 6 percent of sales. The branch can receive up to 20 percent of this bonus pool.

- The branch gets 5 percent for hitting the forecast in terms of percentage returns.

- The branch gets another 5 percent (of the total pool) for hitting or exceeding its dollar objectives.

- The branch gets another 5 percent if it keeps its asset days (inventory and receivables) below a target level.

- The branch gets the final 5 percent and hits a home run if it exceeds its forecast by an additional 2 percent of net income as a percentage of sales. So, if the branch was forecasted to do 7 percent (net income as a percent of sales) and it achieves 9 percent, it has hit a home run.

Eric Miller, the PSS controller, checked his records and indicated that in the first six months of 1998, six branches of the 56 in PSS Medical had hit "home runs" and more than 35 branches were awarded some bonus. The largest individual bonus for the six-month period was \$4,145—not bad if you were a truck driver making about \$16,000 a year.

In addition to sales commissions for the representatives and

The bonus plan, **known as the** "Field of Dreams," **is expressed in terms** of a game that **everyone** can play and win.

sion goes up. After about a year, salespeople are paid strictly on commission. There are also some more collective incentives. For instance, branches are eligible for bonuses if they meet certain financial targets. However, if salespeople don't make their forecasts, they are not eligible for a share of that bonus.

In many companies, people don't really know what they have to do to get a raise or bonus, or how the amount of the bonus is determined. If they know, they may have limited ability to affect it. At PSS, everyone knows the numbers and how they fit in. The bonus plan is expressed in terms of a game that everyone can play and everyone can win. Known as the "Field of Dreams" (based on an analogy with baseball), the rules are as follows:

- The bonus is paid semiannually.

- You have to have been an employee for six months to be eligible.

- Sales reps are not eligible for a share of the branch bonus unless they achieve their gross profit forecast. Operations people must attend 10 of the 12 Challenge meetings (monthly meetings) during the year to be eligible.

- The bonus pool is shared among employees, not the leaders in the branch.

- The bonus pool for each branch is the amount by which

the branch bonuses, PSS World Medical encourages all its employees to own stock in the company. In the Jacksonville branch, for instance, about 70 percent of the truck drivers own stock. After three years with the company, all employees receive stock options.

Open Book Management

Open book management originated at PSS World Medical partly from Kelly's philosophy and values and partly because, early in the company's history, it was financially strapped and sold stock to the employees. Kelly recognizes that if you want a really effective organization, everyone has to be involved, not just the managers or salespeople. To get people to act like CEOs and rise to the occasion, he believes that you have to run an open company. This means people have to see and understand all the information so that they can see where they fit and how their efforts contribute. He sees typical companies as dens of secrecy with departments not knowing (or caring) what other groups are doing. Only the people at the top see the overall numbers or can truly understand how they contribute to the larger effort.

Eric Miller, controller for the Physician Sales and Service division, described the open book management process at PSS and



THIS

IS THE POWER OF BUSINESS WEBS.

Talk about a shortcut. Now you can combine XML web services from companies anywhere on earth into your own customized business web. Want to add the talents of a dozen other firms? Boom, it's done. Suddenly, you're selling their stuff. They're selling your stuff. And champagne corks are flying everywhere. Once, it took months to pull off partnerships like these. Now, it's just another day on the business web. www.bowstreet.com



bowstreet

its advantages. By the 10th of each month, he and his staff send to the operations leader in each branch a preliminary profit and loss statement that is a detailed presentation of the revenues and expenses for the branch. All of the financial information is posted at the branch, including sales by individual representatives, compared with last year and to the budget. People in the branch have the ability to bring up the details behind these numbers on the intranet, download them into an Excel spreadsheet and look at the specific transactions that make up a particular expense category. They can question specific items they think are inaccurate.

At least once a year, at one of the monthly Challenge meetings, where the entire branch gets together to talk about business issues and have some fun together, there will be a review of elements of the profit and loss statements. People will explain what makes up the various expense categories. They will explain what depreciation is, what interest expense is and so forth. Because earning a bonus depends on hitting the numbers, people are interested in learning about operations and the branch's financials. Obviously, people vary in both their

The process is one of bottom-up forecasting. It begins in January, three months before the end of the fiscal year. At that time, corporate headquarters creates a financial model for each branch based on the previous year's sales history, expenses and growth. This is sent to each of the branches. The branch fills out the forecast based on its own assessment of its capabilities, what is going on in the market and what the people in the branch will commit to achieve. During the next three months the CEO and senior managers visit every branch for a four- to six-hour review meeting to go over the forecast on a line-by-line basis. Once the forecasted budget is agreed upon, it is signed by the branch leaders, the regional vice president, the division president and Pat Kelly.

THE PSS CULTURE AND HOW IT IS MAINTAINED

PSS is a values-driven company with a strong culture. Charlie Alvarez is the vice president of corporate development, but informally his title is "CEO of Culture." He talks with pas-

To get people to act like CEOs and rise to the occasion,
Kelly believes that you have to run an open company.

interest and sophistication, but the level of understanding generally is quite good. One problem with financial objectives and measures, as Kelly sees it, is that in most companies, the goals seem to be plucked out of thin air—at least it often seems this way to the majority of people who are charged with meeting these numbers. At PSS, open book management works because from the very beginning of the forecasting process for the next year's budget, people are heavily involved in setting the goals.

sion about the importance of culture for PSS and its success. The culture is built and maintained through PSS University, through the selection process for new employees, through the meetings and social events, including the monthly Challenge meetings, and through practices that build accountability into the organization. The culture and values have been unchanged over the years—despite growth, expansions of the focus of the business and the various challenges the company has faced.

Every organization has its unique cultural rituals, stories and practices that make its values and beliefs real. At PSS World Medical, these unique cultural practices help to exemplify the basic belief in people and their importance. They include the ability to "fire the boss," efforts to drive fear and distrust out of the workplace, an emphasis on having fun, and practices that ensure accountability and consistency in how this rapidly growing, geographically dispersed company operates.

Firing the Boss

At PSS World Medical, the idea of empowerment is taken so seriously that people can actually fire their boss. Although this idea may seem radical at first, Kelly believes that it isn't radical at all. If the job of a leader is to make a branch or other unit work and that person is failing at his or her task, then "if leaders can't deliver, the customers will fire them."



give your B2B, B2C and B2E some ESP.



Everything you need before you even need it. That's what DataChannel really gives you. And it's not just about access to data. You can review, revise, delete, update — anywhere, anytime, on any device. Which means your business information is always current, and always within reach. So what's our secret? We've joined forces with ISOGEN to form the largest XML-based EIP solutions company in the world, employing some of the top XML developers anywhere. We've even carved out our own category, Business to Anyone (or B2A for those who can't stand to use complete words anymore). And that's just the beginning. To get a glimpse at all the future holds, go to our web site at www.B2A.DataChannel.com. We have a strong feeling you'll like what you see.

PSS would rather solve the problem sooner with fewer consequences for performance. Also, as Kelly commented, “ultimately, your people will fire you anyway. They fire you two ways. One, they don’t perform. Two, they quit. So, what we try to do is to provide an environment for our employees and for our leaders to understand that, if your employees can fire you, maybe you need to be listening to your employees and taking care of your people.”

The process begins by someone calling Kelly or another officer saying that the group is upset with their leader. Then Kelly or another very senior executive will go to the facility and meet with the entire team, without the leader present. Very often the complaint is from just one person or a very small group of people and other people think the leader is doing a great job. After some open discussion, the leader will be brought in. As

as much as possible. However, if the poor performance continues, the company moves quickly to find a replacement. But if the company wants to keep people and truly develop them, the answer is not to shunt the poorly performing person into a dead-end job or to encourage him or her to leave—the policy followed by many organizations. At PSS, the company will help the person find another job at which they can succeed. The company is filled with examples of successful people who failed multiple times before succeeding.

The company also practices open communication, something that extends beyond an open-door policy. The idea is that there are no secrets and that chains of command, in terms of information sharing, aren’t very important. People should feel free to talk to others about their ideas for making the company better. When there is a board of directors meeting, Kelly will invite

The company **is filled with** examples of people **who failed multiple times** before succeeding.

Kelly puts it, “We just create an environment where they can start talking.” Regardless of the outcome, there are no sanctions against the people who raise the issue. In fact, senior leaders publicly praise them for getting problems and concerns out in the open. Kelly summarized PSS’s experience with “firing the boss” as follows:

“Eighty percent of the time, the people don’t get fired by their people. It’s just more opening up communications. Sometimes, they do get fired. We offer soft landings to those, to go back to the level of what they can do. And many of them come back. Sixty percent of our officers have screwed up somewhere along the line, had to be repositioned back, and they subsequently got moved ahead and were very successful as officers.”

Driving Out Fear

One of the company’s core values is never punishing people for making an honest mistake. Everyone at PSS is promised a soft landing. Clearly, the practice of rapid promotion means taking risks regarding people. It also means an increased chance that people will fail. In most companies, failure in a job means failure in a career. This creates tension that often makes people cautious and organizations risk-averse. At PSS, this isn’t the case because of the soft-landing policy. If a person does well in a \$5 million branch but not in a \$20 million one, the company needs to end the experiment quickly. For this reason, PSS keeps a careful eye on the numbers and listens to the opinions of people in the branch as well as to customer feedback. If a leader is in trouble, it is the job of the regional vice president to help

employees to attend receptions and dinners and talk to the directors. He and other corporate officers spend time in the field visiting branches and, while there, talk to as many different people as possible. There is no standing on ceremony.

Accountability

PSS World Medical has a culture that emphasizes accountability and accepting responsibility. It also wants to be a company that operates with consistent values and beliefs across its divisions and across its many dispersed locations. One of the ways that this cultural consistency is built and maintained is through “Blue Ribbon” inspections.

The Blue Ribbon Tour is a cornerstone of the culture. Twice each year one of PSS’s senior leaders shows up unannounced at every single branch for an inspection. Everyone in the company has a booklet entitled “The Blue Ribbon Scorebook—A Foundation for PSS Culture.” This lists 100 items detailing the way every branch should look and operate. The senior manager evaluates the branch on all 100 items. These assessments operationally define the culture and include things such as the following: Are the trucks clean? Are there refreshments available for guests? Is there a map showing all PSS locations? Are truck maintenance logs maintained? Is there a Wall of Fame celebrating employee accomplishments? Is the phone answered on three rings or less? Are all visitors asked if they would like coffee? Every question has a yes or no answer, resulting in a possible total of 100 points.

The inspection usually takes between three and four hours

After using
our B2B Internet
auction solution,
your suppliers
may have a
few words
for you.

Like, "Thank You."

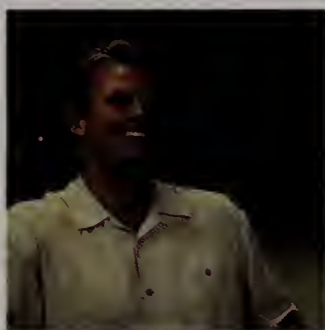
COMMERCE ONE AUCTION SERVICES

Real-time buying and selling opportunities with your trusted suppliers and partners within the comfort of your own auction site or anywhere throughout the Global Trading Web, a network of over 72 vertical and regional e-marketplaces. No equipment to purchase. No systems to install and support. Just browser-based, point-and-click functionality that gives you control of every transaction, including multiple variables and bid parameters beyond mere price and quantity. Taking the complexity out of current RFQ processes while enhancing supplier relationships. And making it all so easy, your suppliers may soon be running B2B auctions of their own.

See for yourself with our online demo:
www.commerceone.com/auctions/c1
or call: 877.261.8516

**COMMERCE
ONE** 

MANY MARKETS. ONE SOURCE.™



and involves meetings with employees, who are asked questions about customer service, product knowledge, inventory and goals. Rather than being a solemn event, the inspection often becomes a raucous social occasion with employees shouting out answers and prodding their colleagues with hints. Two-dollar bills are handed out for all questions asked, and \$20 bills are given to those who pass on-the-spot quizzes. This is not seen as a visit from Big Brother but rather as something done in a spirit of fun and celebration. Branches compete vigorously to be among the top 10 highest scoring branches—both for bragging rights and for the \$2,000 per employee awarded to the top branch (\$1,500 for second place, \$1,000 for third, \$750 for fourth, \$500 for fifth place and \$250 per employee in the branches that finish sixth to 10th).

Fun

Kelly believes that you need to take business responsibilities seriously, but you also need to have fun. People spend too much time at work not to. This means you have to have fun all the time, not just on special occasions. Leaders throughout the company thus set regular times for people to get together and enjoy themselves. The annual sales meetings, held in resorts, are filled with celebration, humor and fun. Once a month, everyone in the branch gets together after work for a Challenge meeting. If a person attends 10 out of 12 meetings, the individual receives 100 shares of PSS stock. Challenge meetings are usually held at a theme park or amusement center and always begin with a 20- to 25-minute session playing the Challenge Game, modeled on the TV show *Family Feud*. Participants are formed into two teams and compete to answer questions about the company. Points are awarded for correct answers and are redeemable for PSS merchandise contained in a catalog. After the game, everyone eats and enjoys himself. These activities

Leaders **throughout the company** set regular **times for people** to get **together** and enjoy themselves.

Commenting on the culture of accountability, Weise stated: "When it all comes down to it, you've got a group of people that are responsible for everything. And we all want to hit Blue Ribbon numbers. We all want to get bonuses. We all want to save money. We are all bound to each other. So when you see something out of the ordinary, out of whack, you're going to say, 'Hey, don't do that, because that's wasting us money.' So, we're all a little company ourselves."

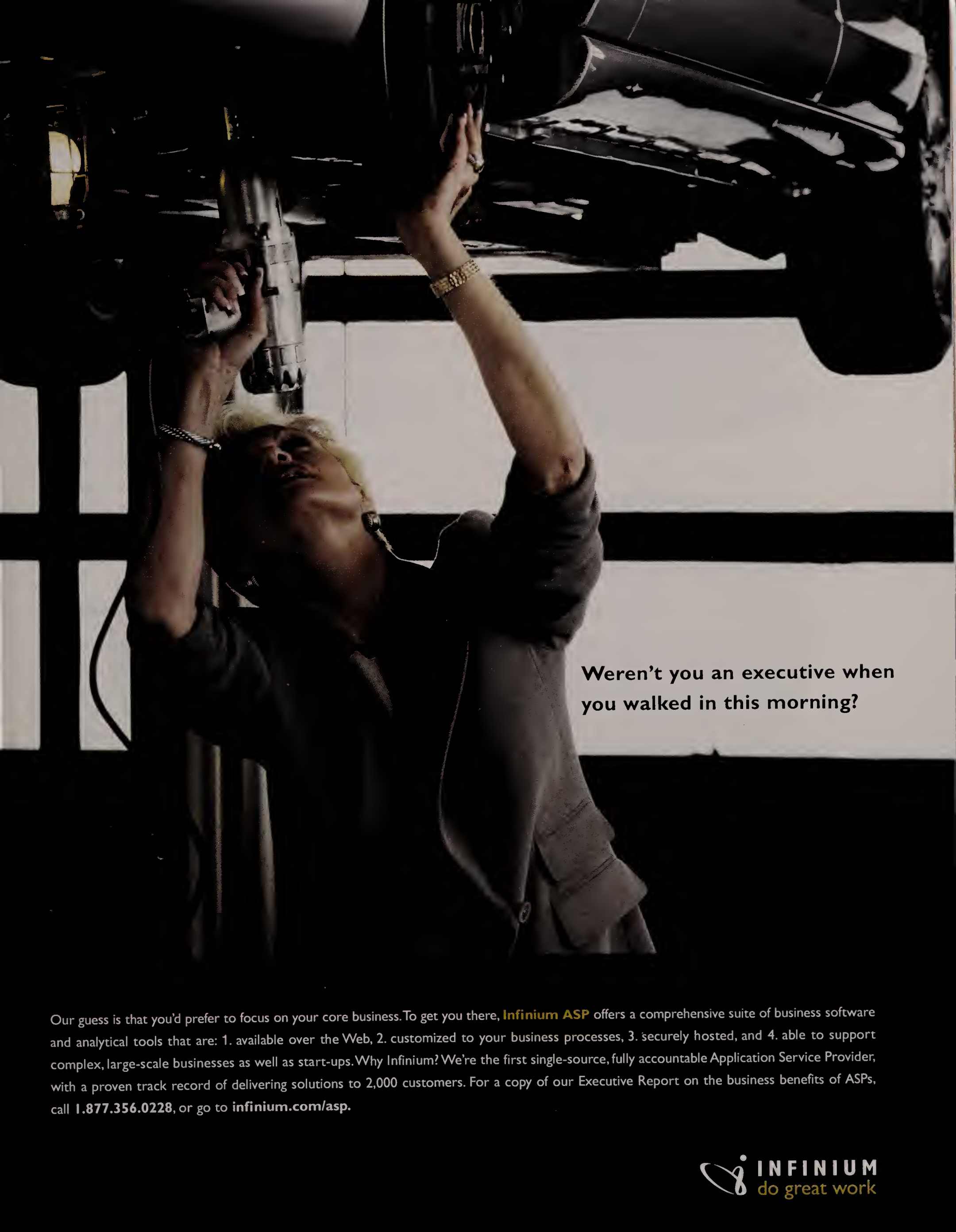
emphasize the importance of practical learning and having fun.

People are also encouraged to get together on their own time. For instance, at corporate headquarters, people get together once every three months to go somewhere. This is a surprise and is announced the night before; for example, everyone goes surfing or attends a party at which prizes such as a free trip to Hawaii are given out. The annual picnic is held over a weekend near a theme park. Families are invited, and a competitive volleyball tournament is held. The idea is that your colleagues will become your friends and you will enjoy going to work to be with them. They're part of the family.



LESSONS FROM PSS WORLD MEDICAL

As we consider what PSS World Medical does that leverages their employees' talents, several things become clear. First, the answers to the two mysteries posed at the start of the chapter are quite interrelated. What the company does to manage rapid growth enables it to achieve outstanding financial results in a competitive environment. That's because solving each of these issues entails the same thing: building a system, a set of management tools and



**Weren't you an executive when
you walked in this morning?**

Our guess is that you'd prefer to focus on your core business. To get you there, **Infinium ASP** offers a comprehensive suite of business software and analytical tools that are: 1. available over the Web, 2. customized to your business processes, 3. securely hosted, and 4. able to support complex, large-scale businesses as well as start-ups. Why Infinium? We're the first single-source, fully accountable Application Service Provider, with a proven track record of delivering solutions to 2,000 customers. For a copy of our Executive Report on the business benefits of ASPs, call **1.877.356.0228**, or go to **infinium.com/asp**.

 **INFINIUM**
do great work

practices, that helps people do their best and permits the rapid integration of new people (whether from internal growth or acquisition) into the organization.

Second, most of what PSS does is not rocket science. Recruiting people who will fit the culture, sharing information so that people know what is expected and how they are doing, providing incentives to do well both individually and collectively, making it safe to try new things and take on new responsibilities, being consistent in behaviors and connecting behaviors to the company's core values, and measuring what matters—the key elements of culture and behavior—seem like obvious things to do. In some sense, they are. However, a number of considerations make these things difficult to implement. And it is in actually implementing management practices that PSS World Medical excels.

What makes this all harder to do than it appears? One element is the need for consistency and alignment among the various management practices if they are going to achieve all they can. What management does, beginning at the top and cas-

tant to success—answering the phone promptly, being polite to visitors, knowing certain facts about the business, meeting certain delivery targets, having branches look a certain way to provide visual cues that guide behavior and so forth. This level of detail is easily ignored by those who attend only to the “big picture” or the grand strategy and ignore the myriad details of day-to-day implementation.

Managing this way requires immense patience and persistence, qualities that are often in short supply. It takes time to train people in the financial concepts that enable them to understand the business, and it takes time to recruit selectively. And achieving consistency and performance once is not enough: The need to engage in management practices that build the core capabilities of the company and are consistent with its values is ongoing and ever present. Every day PSS sales representatives and drivers are in the field building and maintaining customer relationships that are crucial to the company's success. And so, every day the company must be sure that it has motivated and trained people to perform the thousands of interactions with its

Success is in the small operational details, not the grand strategic decisions that entrance many senior managers.

cading down through the organization, sends a set of messages about what is important and how to think about the business. If these messages are inconsistent, people get confused. Achieving consistency and alignment is hard work. It requires attention to all the myriad details of day-to-day management. If you are going to give people responsibility and accountability, then they need training, and PSS provides both the opportunities and the training necessary to capitalize on them. If you are going to hold people accountable, then they expect to be rewarded for their accomplishments, and PSS does this also. If you are going to build a company of motivated, ambitious people, then you need to recruit the right people in the first place, people who are interested in the challenge. PSS's hiring for fit, its rigorous selection process and PSS University all help to build consistency in core values and beliefs. If you are going to be flexible and cope with rapid growth and change, you can't be bureaucratic. PSS's flexible, decentralized structure and absence of rules help build adaptability.

Doing what PSS has done also requires enormous attention to detail, not only to achieve consistency across activities, but to structure each management practice with enough forethought that it produces the attitudes, values and behaviors crucial to the firm's success. Think of the Blue Ribbon inspections and the need to consider all of the things that are impor-

customers and suppliers that determine its financial performance.

PSS has sales reps who call on 33 percent more accounts on average and are better at meeting the customer's needs. It does this not by pressuring or pushing people, but by giving them information, opportunity, training, coaching and a fun place to work. The secret of this company is no secret at all—it simply requires more attention to detail than many managers are willing to devote. Success is in the small operational details, not the grand strategic decisions that entrance many senior managers.

But PSS is not perfect. Although it has successfully met one of the great leadership challenges—unleashing the potential in its workforce—success is not guaranteed. Recently, after a large acquisition, accounting irregularities were uncovered that caused Wall Street to punish the company's stock. PSS has also learned that its business model may not work as well in the long-term health-care sector as it does in the medical supply business. So, for the moment, PSS is in a period of retrenchment. But its same-store sales continue to grow, and its people remain committed. What remains true, in spite of the current difficulties, is that PSS has built a set of management practices that has helped it tap the energy and enthusiasm of all its people. **CIO**

Reprinted by permission of Harvard Business School Press. Copyright 2000 by the President and Fellows of Harvard College; all rights reserved.



Some companies are really on the ball.



Some of the world's most forward-thinking companies have transformed their Web sites into live meeting rooms.

They have discovered the speed, reliability and scalability of the WebEx Interactive Network. Their Web sites now hum with people conducting business right in their browsers, without any hardware or software changes.

Now you can give presentations. Share software and desktops. Tour the Web. Voice and video conference. All in real-time. All on the Web. Talk about ROI. Isn't it time your company got on the ball? Visit webex.com or call 1-877-50-WebEx to see how great minds meet online.

great minds meet online at webex.com



Emerging technology

INNOVATION and PRODUCTS in the VANGUARD

Inside

- new products
..... 250
- predictions
staffing 254
- revisit
wireless
connectivity 256
- under
development
personalization .. 260



Office Suites Go Online

ASP-delivered productivity tools search for a market

BY MATTHEW W. BEALE AND CHRISTOPHER LINDQUIST

Edited by Christopher Lindquist. Send your thoughts and ideas for future columns to et@cio.com.

FEW CAN DENY that the ultimate dream of the application service providers (ASPs) is enticing: Imagine users accessing any of their applications and data whenever, wherever. At the same time, one of the most tedious tasks facing any IT

department—installing and supporting applications and managing users' data—disappears. Eager to test this promise, some companies have already started using ASPs in areas such as customer relationship management and supply-

online productivity...wireless connectivity...personalization...staffing



1,345,622 e-businesses.
And not one that runs by itself.

Ever seen a computer deliver anything? Close a deal? Go with its gut? It's people – your customers, employees, and suppliers – that run your company. And we've designed PeopleSoft's new generation of e-business applications to help your people turn e-business into e-profits.

CUSTOMERS • EMPLOYEES • SUPPLIERS

People power the internet.™

PEOPLE
Soft

chain management. Now a handful of developers have their sights set on applying the ASP model to personal productivity tools—word processors, spreadsheets, presentation packages and the like.

The goals behind online office suites mimic those of any other ASP offering—reduced support costs, pay-per-use or subscription-based price flexibility, continuous access to upgrades and the ability for users to run the product anywhere, no matter what computer they happen to be using. In the end, ASPs promise, companies will be able to do more with less infrastructure and fewer people.

No Slam Dunk

Productivity suites, however, present unique challenges. Many customers are used to seeing large-scale corporate apps residing on some remote company server and therefore won't notice much difference if those applications just happen to

and stability thing is still up in the air," says Chris Pickering, a senior consultant with Boston-based Cutter Consortium. "It's not proven at all that ASP is an appropriate model for delivering desktop productivity applications."

In fact, history seems to indicate the opposite. Lotus, for instance, launched and subsequently failed with its eSuite offering, officially pulling the plug on the Java-based, network-served business application product in September 1999. Originally released two years earlier as a product for delivery over thin clients, Lotus tried to reinvent eSuite for the Web last year, but performance issues kept users from showing much enthusiasm.

Everybody in the Pool

That lesson hasn't stopped plenty of companies from trying. Technological advances, such as broadband, and a rapidly expanding online market have

Many customers are used to seeing large-scale corporate apps residing on some remote company server and therefore won't notice much difference if those applications just happen to be on some ASP's server instead.

be on some ASP's server instead. But productivity tools have always lived on the end user's PC. Many users customize these tools to suit their particular needs and styles, while power users often take advantage of advanced features that ASP-based products are unlikely to offer, at least in the short term. (Software distributed through the ASP model works best when streamlined, as it can be difficult to transmit bulky, bell-and-whistle-filled applications over the Internet.)

"The whole performance, bandwidth

enticed companies like Freedesk.com, MyWebOS and ThinkFree.com to offer online office suites—though their current lists of corporate customers are short. Each company offers a suite of slimmed-down office tools—word processing, spreadsheets, presentation software—that users can access from nearly any Web-connected computer.

In a world where Microsoft Office dominates the productivity market, these companies hope to carve a niche for themselves by offering services the Redmond,

new products

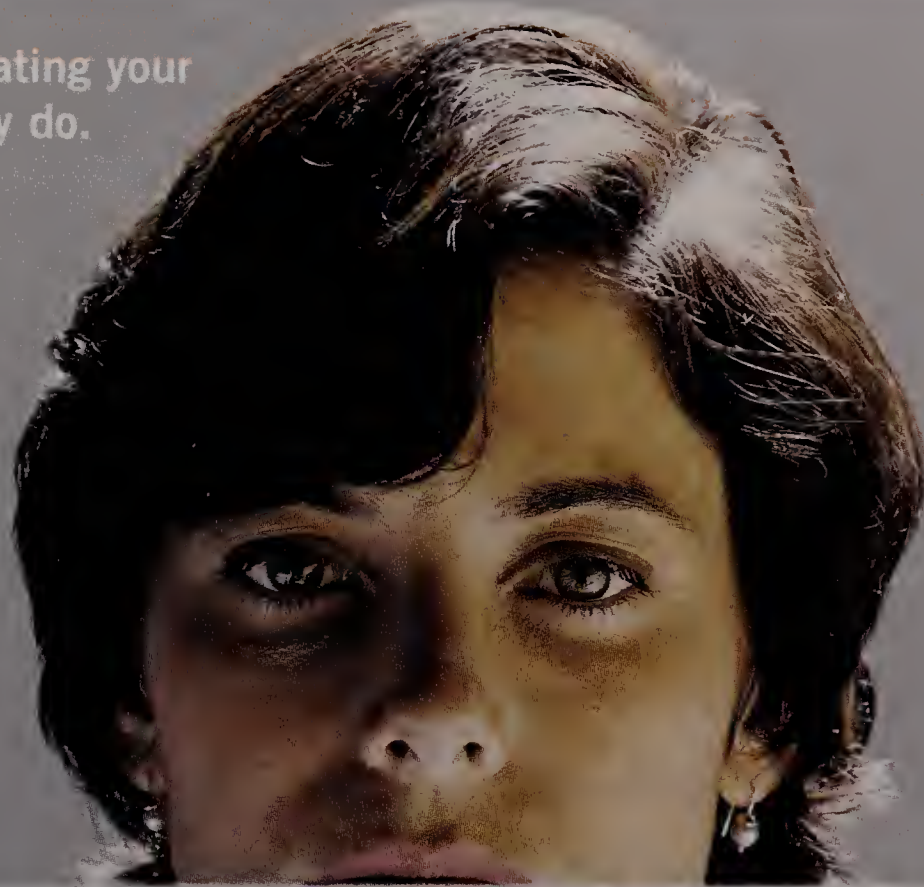
DSL Made Easier

Getting DSL up and running for your remote offices or telecommuting users may not be simple yet, but **Westell Technologies'** new DSL modem may ease the load a bit. The company's latest **Wire-Speed** DSL modems connect to PCs via Universal Serial Bus (USB) connections, which eliminates the need to open a PC's case or take up a serial port and offers plug-and-play simplicity. The modems come in two models: a bus-powered version that requires no external AC adapter (but prevents you from adding other devices to the same USB port) and a standard model that uses external power. The bus-powered version lists for \$269, while the AC-powered modem costs \$10 more. For more information, visit www.westell.com or call 630 898-2500.

Store Evermore

Running out of space to keep your things? **Procom Technology** recently unveiled an enhanced version of its **NetForce 1500** network-attached storage appliance. The new model features up to 730GB of storage housed inside a self-contained management product. Administrators attach the device and run through an installation wizard for initial configuration. A Web-based tool provides access to system settings for ongoing

Success comes from anticipating your customers' needs before they do.



PeopleSoft Customer Relationship Management is about knowing what your customers want – even before they do. By tracking your customers' behavior and history, PeopleSoft's new generation of e-business applications gets information into the hands of the people in your company who need it, when they need it. Now, armed with Vantive's best of breed CRM technology, everyone can proactively forge and develop profitable customer relationships like never before. Which is exactly the competitive advantage your people need to successfully lead your business.

PeopleSoft CRM powered by

vantive

CUSTOMERS • EMPLOYEES • SUPPLIERS

People power the internet.™

PEOPLE
Soft

Wash., giant has yet to deliver. But they face an uphill battle. Even much larger Microsoft competitors seem to realize that.

Sun Microsystems, for instance, purchased office suite maker Star Division last year. The acquisition gave Sun a wedge into the online productivity suite market by providing it with a set of office tools already in use among Linux, Unix and even some Windows customers. The suite also offered a foundation for Sun's

targeting smaller business customers and individuals who are currently reluctant to manage their own applications.

Looking for a Home

According to ASP productivity vendors, organizations ranging from school districts to small and medium-size enterprises are considering deployment of such solutions. Even lawyers are getting in on the act. "Law firms are always looking to get as much bang for the buck as possible,

According to ASP productivity vendors, organizations ranging from school districts to small and medium-size enterprises are considering deployment of such solutions.

StarPortal online initiative. But Sun executives have been quoted as saying that the company doesn't intend to go directly after the entrenched Microsoft Office desktop market with StarPortal, instead indicating that the future is online, not on the desk.

Of course, Microsoft has its own network play in the works—Office Online. In pilot testing as of this writing, Office Online is slated to go into wider distribution later this year, with the ultimate goal of providing core Microsoft Office features online to any business.

Given the seeming lack of interest in such tools by corporate customers, it's logical to ask why all these vendors are doing it. According to Pickering, there are several possible reasons: The smaller companies want to become players without having to fight Microsoft on its own turf, larger vendors want to position themselves in the market in case it takes off, and all the contenders may be trying to create a market where none yet exists by

and this has enabled us to spend more time elsewhere on additional projects," says C.J. Erickson, a partner at Soller, Shayne and Horn, which recently implemented a network version of Microsoft's Office Online 2000 supplied through New York City-based ASP Winstar. The law firm, which has domestic and international offices, plans to use online access to desktop applications to enhance file sharing and collaboration among employees, regardless of their location.

Pickering notes that certain types of businesses could benefit more than others from the ASP productivity app model. For example, he says, a tax-preparation company that takes on numerous temporary employees who have word processing or spreadsheet requirements for a few months might find considerable cost savings with an ASP implementation. "Come May, you pull the plug until next year," Pickering says.

That scenario echoes the claims of some ASPs. According to Jim Rice, vice

new products

administration. Data is protected using RAID Level 5 with battery backup for the onboard cache, plus redundant, hot-swappable power supplies and support for hot spare drives. Pricing starts at \$22,000 for a 180GB model. For more information, visit www.procom.com or call 949 852-1000.

You Too Can Yahoo

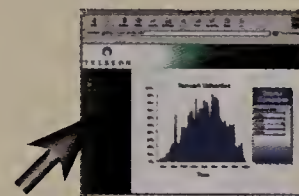
The My Yahoo information portal provides updated information to millions of users each day. Now companies can take advantage of the familiar interface to offer employees a combination of internal corporate information and external news via **Corporate Yahoo**. The product uses Tibco Software's ActivePortal technology and Yahoo's Portal Builder software to create an integrated portal that can access corporate databases, intranets and applications, as well as My Yahoo information. Pricing depends on the scale of the implementation. For more information, visit corporate.yahoo.com.



Today your business needs to move data at warp speed. But once it enters the telephone company's network, that same data runs into a tangled mess of fifty year-old switches, cables and wire. As a result, information often slows to a snail's pace. But not on the Telseon network.

Telseon was created for one reason: to break the urban broadband "bottleneck". We transport your data at speeds up to 1000Mbps across our dedicated fiber-optic network.

With Telseon you're in total control of your company's broadband connectivity. Your connection speed is instantly scalable at any time via our secure website interface.



Find out how fast your data can really move. Visit telseon.com. And switch from a network designed for the telephone to one created for the way business works today.

telseon.com

DOES YOUR DATA RUN INTO A TIME WARP
ONCE IT LEAVES THE OFFICE?



TELSEON
Because data should fly.™

©2000 Telseon, Inc

Such online tools may also prove suitable for mobile applications, where small devices such as PDAs don't have the storage required to carry around tools for every possible situation.

chairman of ASP FreeDesk.com, the service provider model is also an ideal solution for companies looking for short-term usage of a particular program. "If you suddenly need something like Microsoft Project, you don't have to hustle down to Computer City to buy it," he says. (FreeDesk.com licenses and redistributes the Anyware Web-based office suite produced by VistaSource, a subsidiary of Linux-centric software maker Applix.)

Such online tools may also prove suitable for mobile applications, where small devices such as PDAs don't have the storage required to carry around tools for every possible situation. To encourage Internet and wireless application development, MyWebOS is releasing its application programming interface so that developers can create new Internet and wireless apps that can run on the MyWebOS online operating system.

Is It Safe?

Despite the potential positives, ASP-delivered productivity tools face even more hurdles than other ASP products. Security is one of the most significant concerns for any ASP solution, but more so for productivity apps critical to the daily lives of most corporate users. And as red flags went up earlier this year when a number of large sites were disrupted by distributed denial-of-service attacks, users have become even more concerned.

Then there's a matter of trust, according to Aberdeen Group analyst Lew Hollerbach. He notes that many productivity tool ASPs also outsource some of

their own processes, leaving some users apprehensive about the integrity of their data and resources. "You're dealing with a supply chain that is reasonably complex, and there are a lot of parties that need to come together in order to make an ASP work," he says. "Any weak link can send the whole thing crashing."

Pickering concurs: "Nobody's going to be willing to suffer through instability in the desktop platform because the ASP is having trouble delivering it." The flip side

of access anytime, anywhere is access no time, nowhere if an ASP doesn't live up to its promises. You know what your users say if they lose e-mail access for even a short time. Imagine the outcry if they lose access to their word processor and spreadsheets too.

The ASPs that have entered the productivity application market early will have the benefit of experience as the market matures. But it remains to be seen whether they have entered too early—and whether any vendor can compete against Microsoft no matter where the productivity apps reside. ■

Matthew W. Beale is a freelancer who is currently working on several fiction projects and creating a new magazine/website that will cast a critical gaze at technology. He can be contacted at trona@mindspring.com.

A world without boxed software got you excited? Tell us about it at et@cio.com.

PREDICTIONS staffing

Hiring Woes: No End in Sight

FOR MOST IT MANAGERS, sob stories about a dearth of qualified employees come as nothing new. But according to a June 2000 report by Stamford, Conn.-based Meta Group, the situation is going to get far worse before it gets better.

The report states that at the end of 2000, some 850,000 IT jobs will be left unfilled—more than twice the number vacant at the end of 1999. Despite the backlog of empty positions, more than half of the survey respondents indicated they were increasing the size of their departments, with IT staffing up 25 percent since fall 1999 across all industries. Given that growth, the finding that 75 percent of respondents were understaffed shouldn't be a surprise. The respondents also made it clear that Internet-related skills were high on their requirements lists. And Java skills outranked business acumen, project management, networking and leadership as a necessity.

As a result of the crunch, some 35 percent of respondents said they were outsourcing large-scale implementation projects. Companies also reported they were using tuition reimbursement (93 percent) and sign-on bonuses (65 percent) to lure new employees. The money may be helping: The report notes that employee turnover dropped 4 percent—from 15 percent in 1999 to 11 percent in 2000. But Meta Group takes a pessimistic stance that turnover will once again hit an upswing to around 13 percent by the end of the year.

—Christopher Lindquist



Pick up a phone anywhere in the world and there's an 8 in 10 chance you're connected thanks to Informix software. Shop at 9 of the world's top 10 retailers and 18 of the world's 20 largest supermarkets, and Informix completes your sale. Make travel reservations, and your seat assignment or hotel room is probably booked using our solutions. Now, we've taken all that voice and data network expertise and put it into a new generation of Informix software born of the Internet age. It's built for the Web from the ground up—all the software you need to make your Web business work. Now. So let's talk.

www.informix.com or 1-800-331-1763

Informix[®]
SOFTWARE
way to web[™]

REVISIT

wireless connectivity

Something's in the Air

After nearly a decade, wireless technology is still in its infancy

BY FRED HAPGOOD

CIOs LOOKING AT the wireless data scene today might get so daunted that they'll begin to think their current tangle of cables and wires looks pretty good. Where do you begin?

On the most general level you have short-range intraoffice wireless technology (like Bluetooth), meant to replace local cabling; fixed wireless, to replace or supplement LAN, extranet and "last-mile" broadband cabling; and mobile wireless, pushing data communications to laptops, cell phones and PDAs. Each of these raises questions of reliability, scalability, return on investment, security, coverage, application design, interface and peripheral availability, integration with the corporate network, and compatibility with whatever other signals are in the neighborhood.

That dizzying complexity helps account for the rather minor incursion that wireless technology has made into the corporate world. At the moment less than 5 percent of all corporations have a wireless application in place, according to Jack Gold, a Westborough, Mass.-based vice president with analyst firm Meta Group. In part this complexity comes as a price for living at a time when wireless is the technology du jour. But the landscape was not that different eight years ago, when *CIO* ran its first articles on the medium. "Today wireless is a consultant's dream of complex, rapidly changing technologies and rate structures," we wrote in October 1992. Sound familiar?

In 2000 we at least know which products made it to adulthood. For example, we referred in passing to setting up a radio network to handle dispatch data, specifically routing and scheduling service calls. In retrospect, this idea was a win. Support and maintenance costs were high, but the return—more calls per day—was quantifiable and real enough to attract large, technically competent clients like IBM and General Electric. As technology (and antenna coverage) improved, non high-tech companies, such as Otis Elevator, picked up the application. Large retailers (including Sears) figured out how to extend the system into deliveries and build it into the heart of same-day delivery policies.

These big companies wrote their applications themselves, but

new products

Constant Contact

Unified messaging is on a lot of lips these days as vendors hope to cash in on the customer desire to get easy access to all forms of communication in one place. **Blue Silicon** has entered the fray with **Extended Enterprise Messaging**, a service that gathers voice mail, fax, e-mail and paging under a single umbrella. Users can access their messages in a variety of ways: over the phone via interactive voice response and text-to-speech, through a Web browser or with any standard e-mail client. The company also provides local-number access to the service from 30 locations worldwide. Pricing starts at approximately \$20 per mailbox. For more information, visit www.blue-silicon.com or call 408 954-8000.

Moving at Web Speed

NetScaler has unveiled what it claims is a new solution to the problem of overloaded Web servers and surge-based system slowdowns. **WebScaler** works to remove network processing and operating-system overhead from Web servers, thereby letting them process more requests without performance deterioration. The system can work in conjunction with existing load-balancing and caching products, and it requires no network reconfiguration. It also





Because I get sound
advice and market
intelligence from IDC,
the most respected
name in information on
ebusiness, technology
and the future.

Shouldn't you?

**I know I'm
making the
right ebusiness
and technology
decisions...**

www.idc.com

 **IDC**
Analyze the Future

startups eventually emerged to take on this job. In the mid-1990s, dispatch wireless spread to ever-smaller trucking fleets and out to sectors like manufacturing (materials handling), retail (inventory) and health care (hospital rounds). Today, hosting companies, such as Broadbeam Corp. of Princeton, N.J. (until recently Nettech Systems), make it almost as easy to set up a dispatching application as choosing a news feed on Yahoo. You register with the hosting service, take delivery of the data terminals, mount them on your trucks,

Of the three categories of wireless mentioned, fixed wireless probably clears the bar with the most room to spare. In fixed wireless all the features of the system, from signal strength and signal direction to the nature of the equipment, are known and controllable. This provides a huge technical advantage over mobile data wireless, which has to handle signals of various strengths coming from anywhere and going anywhere. The infrastructure supporting mobile wireless data has to be built out considerably before it

The lesson is an old one: When innovations first appear they are usually rough and full of unknowns.

and you're done. All you need to manage your fleet is a browser. This is certainly a CIO-friendly operation.

The lesson is an old one: When innovations first appear, they are usually rough and full of unknowns. To take root, a technology has to attract users prepared to spend the time and money needed to make it practical for the next generation. As these users hammer away, experience accumulates, standards solidify and employees trained in the technology quit to become consultants. Costs come down and reliability goes up. A similar story could be told about two-way paging, the other great wireless data success story of the 1990s.

This history suggests that a CIO currently trying to pick the best entry in the world of wireless data apps should look at domains where the returns are easy to define, the technical issues are well-posed—if not necessarily few or simple—and the early contenders are likely to have the resources and the skills to deal with the unavoidable problems. In such sectors, prices will fall and reliability will rise more rapidly than in others.

can be relied on for a business purpose, which raises costs and imposes long development schedules. Fixed wireless needs only two stations to start putting in a day's work. Mobile devices, with their small screens and tiny memories, can require completely new suites of interfaces. Fixed wireless links are invisible to the rest of the system.

Finally, the heart of the fixed wireless market—supplying last-mile broadband in areas where there is no ideal wired alternative—is well-defined and enormous. The overseas markets alone guarantee a yeasty future for this industry. While there are certainly unresolved issues, such as choosing between microwave (Sprint Broadband Direct) and “fiberless optics” (TeraBeam Networks), they seem fewer and simpler than penetrating the dust and noise swirling around mobile wireless data. Mobile and short-range wireless might be more important in the long run. They might launch more apps down the road, but if you are looking to make your life simple, history suggests fixed wireless should go to the top of your agenda. ■

new products

can protect servers against denial-of-service attacks. The base price for the unit is \$20,000. For more information, visit www.netScaler.com or call 408 330-9200.

Tale of the Tape

You can never have too much storage. To that end, **Spectra Logic Corp.** recently released its **Spectra 64000** tape library. The unit can house up to 32 Sony AIT-2 tape drives and as much as 83.2 terabytes of media in 70 inches of rack-mounted space. Spectra's Shared Library Services technology lets administrators split the unit into “logical libraries” to support various needs. Users can buy the system with as few as 100 tape cartridge slots and two drives, and later upgrade to as many as 640 slots and 32 drives as their storage needs expand. The unit is also designed to allow expansion of future advanced drive types. Pricing starts at \$88,500. For more information, visit www.spectralogic.com or call 303 449-6400.



i'll never

have to hear "i'll get back to you" again.

Seamless integration. It means your employees can access
customers' data immediately. And give them the right answers quickly.
It's just part of what happens when you combine IBM's leadership in e-business solutions with
Siebel's leadership in e-customer relationship applications.

jason becton, busy customer

IBM

e customer relationships

SIEBEL

1.888.917.8884

ibm-siebel.com

UNDER DEVELOPMENT

personalization



Sunspots Lead to More Successful Searching

E-COMMERCE may be a war in progress, but who would have guessed that the next weapon in the online marketer's armory would come from real-world battlefields?

In the early 1990s, George Roumeliotis was a senior research scientist in the astrophysics group at Stanford University, where he was studying solar flares. These violent phenomena on the sun's surface can have detrimental effects on earthly telecommunications—a subject of great interest to the U.S. Air Force. Roumeliotis was specifically trying to find ways to predict the occurrence of flares before they

happened—giving the military a heads up that battlefield communications could be about to go on the blink.

Scientists studying the flares often had sparse data to interpret—perhaps only a few photons in a given frequency range, Roumeliotis says. Consequently, the researchers developed pattern recognition algorithms capable of producing reliable results but with minimal information.

Then, in the late 1990s as the Internet boomed, Roumeliotis made an intuitive leap: If such algorithms could predict potential explosions on the surface of the

sun based on limited data, why couldn't they be used to predict the behavior of online shoppers based on observations of their actions?

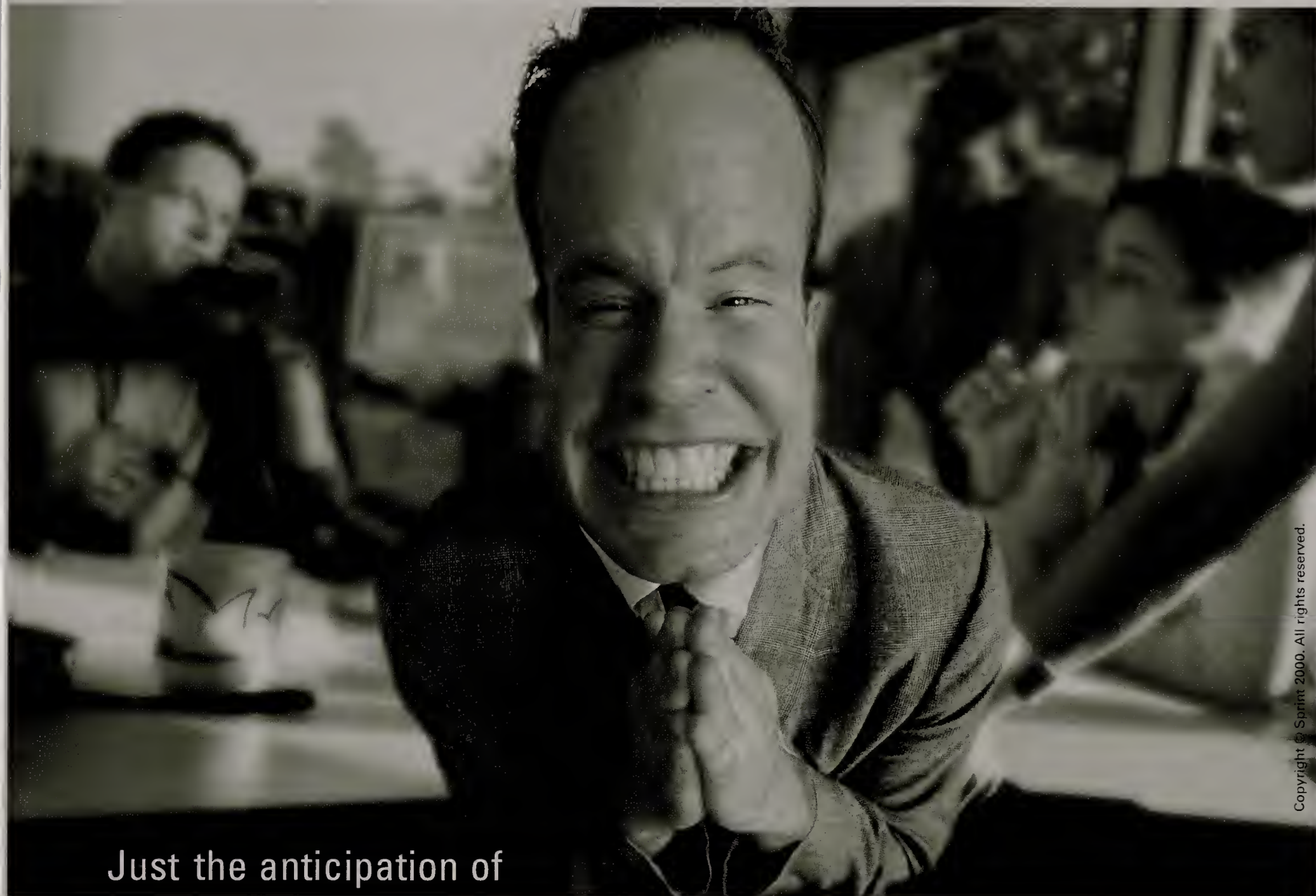
To test the theory, Roumeliotis and his partners formed Dynaptics (www.dynaptics.com). The Cupertino, Calif.-based company makes products that rely, at least in part, on the earlier solar-flare research. According to Roumeliotis, Dynaptics' personalization products offer several advantages over traditional search and hard-coded online tools. These products, called E-sstants, don't require much information to get started. They don't make the mistargeted offers that hard-coded "hit this page; get this suggestion" tools often provide.

And E-sstants don't require historical data—they follow only a single user session rather than setting cookies and tracking long-term behavior. That could be important if online privacy issues begin to make cookies and other monitoring tools more difficult to use without explicit permission.

Dynaptics recently unveiled the Personal Shopping E-sstant and the Personal Information E-sstant, which work in different ways to achieve the same end—increased purchases by online shoppers. The Shopping E-sstant tracks Web visitors' movements and targets additional information at them—perhaps a suggestion for a related product or a special-package discount (offering a helmet to go along with a bike, for example)—depending on the choices they make. The Information E-sstant helps buyers dig up products they might otherwise miss at auction and exchange sites.

—Christopher Lindquist

E-sstants don't require historical data—they follow only a single user session rather than setting cookies and tracking long-term behavior.



Copyright © Sprint 2000. All rights reserved.

Just the anticipation of

configuring your e-commerce
makes you want to **dive in** headfirst.

It's remarkable what Sprint e-commerce can do.

Imagine sharing our ideas, experience, and contacts as you custom design your e-commerce environment to be secure and scalable, from architecture through applications. Doesn't just the thought make you smile ear to ear?

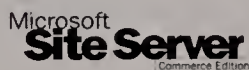
You can go to market faster, minimize costs, and future-proof your online channel by outsourcing your e-commerce system to Sprint. We'll build you a complete solution with tools like personalization, intelligent cross-sell, dynamic merchandising, and online order tracking and payment processing.

So call us, or a Sprint Authorized Sales Agent, and find out how we can design your e-commerce solution to increase sales and expand your reach.

Let's make contact: 1 877 256-7050, www.sprint.com/e-commerce



The point of contact®



Opinion

IN THIS SECTION

CIO Confidential

Anonymous 262

Re:

Rod Travers, Jürgen Laartz,
Alexander Scherdin, Dante
Cafarelli and Klemens
Hjartar 268

Sound Off

Martha Heller 274

From the Publisher

Gary Beach 278

CIO Confidential

Only the Names Have Been Changed

Survivor

BY ANONYMOUS

I MUST BE ONE of perhaps five people in the United States who hasn't watched *Survivor*, the CBS summer replacement series about 16 contestants (castaways) dropped on a remote island to compete for \$1 million. It isn't for lack of time, although finding more productive things to do is never much of a problem, and I'm not one of those pretentious nudniks who are proud to announce to anyone who'll listen that they don't watch television. I'm a pretentious nudnik for other reasons.

I like TV. I watch NFL football, *Imus in the Morning* and *The X-Files* with the concentration of a brain surgeon, and yet they couldn't make me watch *Survivor* if the episode featured Larry Ellison being served as that evening's entrée. A



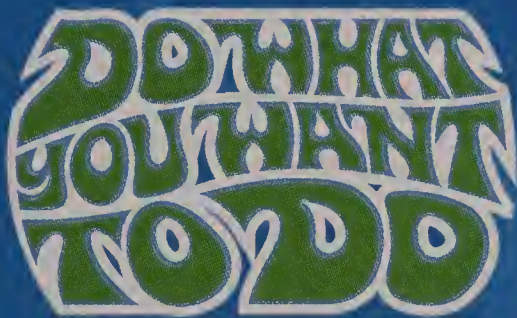
description of the show explains why:

For 39 days, 16 castaways are marooned on a tropical island in the South China Sea, where they're forced to band together to survive using their collective wits. The survivors form their own cooperative island society by building shelters, gathering and catching food, and participating in contests for rewards. Those who succeed in the day-to-day challenges are rewarded with things to make life more bearable, and those who fail

ILLUSTRATION BY TED PITTS

Do You Want To Max Out Your e-Business Opportunities?

Want to use the Internet to connect branch offices and reduce communications costs? Groovy. Want to secure your corporate network and keep confidential information confidential? Right on. Want to make sure your customers are who they say they are and take advantage of new ways to do e-business? Far out.



With Cylink you can do all that and more. Because for more than 16 years we've been developing security solutions for some of the largest and most respected companies in the world.

Solutions that are easy to implement and easy to manage from anywhere on your network regardless of type or technology.

So don't let network security keep you from doing your e-business thing. Max out your e-business opportunities. And do what you want to do. With Cylink.



Securing e-business

www.cylink.com

must do without. Periodically, the deal making, backbiting and political maneuvering are brought to a halt while the castaways take part in a secret ballot to throw one of their tribe off the island. Week by week, one by one, the tribe shrinks until, at the end of the final episode, the sneakiest, scrappiest, backstabbingest survivor remains to claim the bounty.

Gives you the shivers, doesn't it? This is what the networks call a "reality" show. Now why would we need a TV reality

One by one, the tribe shrinks until the sneakiest, scrappiest, backstabbingest survivor remains to claim the bounty.

show when this kind of realism is happening in our offices 14 hours a day and without, I might add, the acid trip of watching William Shatner sing (if it can be called that) about Priceline.com?

For God's Sake, Scotty, Beam Him Up!

Leave it to the television networks to package our worst workplace nightmares and call it entertainment. It's office politics with a dash of sand in your underwear.

Some research I've seen recently supports my long-held suspicion that most executives who fail in their jobs do so because of political problems, not skill deficiencies. A lot of intelligent, capable, well-meaning men and women have seen their careers stall (or they simply ran out of patience) because they hadn't learned to cope with office politics or couldn't comprehend the motivations of the miscreants around, below and above them (known coincidentally as survivors), whose all-consuming ambition is a 5 percent raise and a better company car. It's not the mechanical aspects of their jobs that sink most CIOs; instead, they simply can't come to grips with the interpersonal arm wrestling, horse-trading and all-too-petty power plays that exist in the vast majority of organizations with more than two employees. In the pursuit of what they believed to be ethical leadership, most simply can't understand or cope with the unspoken values of an organization that sanctions this destructive behavior.

Communicating indirectly, hiding vulnerabilities, currying favor and doling out the truth with an eyedropper is a game that many fast-tracking junior executives learn pretty early on in their careers. With a little practice, you'll find they're surprisingly easy to pick out from the herd. Their No. 1 priority is to be liked rather than speak the truth. Their desire to please will lead them to laugh at your lamest jokes. They adopt the

mannerisms of a concierge when interacting with superiors and then later worry at length about whether they said the right things. And they never, ever publicly disagree with the majority point of view.

Dick (not his real name, of course), a direct report in one of my bygone departments, was a so-so director of applications development and a highly skilled weasel. Dick believed that before you criticize someone, you should first walk a mile in their shoes. That way, when you do criticize them, you'll be a mile away, and you'll have their shoes. I made a lot of mistakes managing Dick. My biggest mistake happened the first week I joined the company. Two or three times during my orientation meetings, Dick was characterized in casual conversations as a survivor. If I had been using my head, I would have taken this euphemism for the warning it was meant to be and fired him under the banner of "house cleaning." I didn't, though, and within a few months I was stuck with him, unable to justify his removal on grounds that would satisfy HR and barely able to control the damage he did to reputations and morale.

Dick's MO was to criticize his peer directors in the IS department to senior management in other departments. The idea was to spread fear and doubt, not only about the quality of the applications the other IT directors were providing, but also about their veracity during project updates and progress reports.

This situation, as obvious as a fortune cookie that reads "Soon you will be finished with dinner," took me forever to figure out for a couple of reasons. First, those receiving the information were all too willing to accept the negative news at face value (it being about IT, after all) and were not inclined to share with me what they were hearing. Second, I could not imagine why anyone would be motivated to do such a thing. I have always seen this type of behavior as an indication of insanely high levels of insecurity. I say insane because in these times of high demand and low supply, even a no-talent like Dick is among the most permanently employable people on the face of the earth. Had I given Dick what he deserved, it would have taken him about 20 minutes to find another job at twice the salary.

Sadly, every department has a Dick. For that reason, allow me to share with those less seasoned among us a few of the rules for surviving office politics.

Rule No. 1: Overcommunicate

The engine driving office politics is gossip, a highly technical and complex form of communication in which messages are carefully prioritized for maximum effect. A lie will make it halfway around the company while the truth is still in rush-hour traffic.

Undercommunication on your part can be deadly, especially



Are you seeing the whole picture?

In e-business, what looks good one minute can be deadly the next. That's where Informatica comes in. We give you instant access to all of your information no matter where it is. Delivered to you no matter where you are. So you can make informed decisions. See the whole picture now, at www.informatica.com/elunch-CIO. Or call 1-800-970-1179.

INFORMATICA
NOW YOU KNOW™

Winners of Anonymous' Best IT Mission Statement Contest

You may recall in the May 15 issue I called for a nationwide search for the best IT department mission statement. I was interested in finding a mission statement that was written in English, without new-age gobbledygook words like *world-class*, *value-added* or *paradigm*, and that was brutally accurate and short enough for everyone to memorize. The statement had to be simple, upbeat and true and have the company's best interests at heart—something along the lines of:

Our mission is to create and run systems that our company can use to beat the competition bloody.

I love that one. To the 30 or so of you who participated, thank you. The panel of judges (myself and the guy who paints my house) found the entries thoughtful, compelling and sometimes pretty funny. We particularly liked the entry submitted by **Tom Uryga**, CIO and IT director of Resources Connection in Costa Mesa, Calif. His mission statement reads:

"Shake down vendors for hats, mugs and shirts."

Nice one, Tom. Anyhow, without further ado the contest winner and runners-up are:

HONORABLE MENTION

Most off-point but otherwise pretty memorable

Name: **C.M. Slate**

Mission: **Listen. Analyze. Listen. Plan. Listen. Act. Learn. Find better-paying job. Repeat.**

FIRST RUNNER-UP

(Who will be expected to serve should the winner become incapacitated)

Name: **Wayne Goldsmith**

Mission: **Survive the continuous onslaught of political storms while continuing to provide efficient service to our agency clients and save the taxpayers money.**

GRAND PRIZE WINNER

Name: **Matt Kramer, vice president, Syntegra (USA)**

Mission: **Make things. Sell things. Count the money. Have fun.**

Congratulations, Matt. Your brand-new 2000 Jaguar XK8 convertible is on its way! If it doesn't arrive in a couple of weeks be sure to send Abbie Lundberg a nasty note.

—Anonymous

when things aren't going all that well. You may have to spend millions to effectively communicate your systems strategy to your stakeholders throughout the world, but just get your mouse caught in the shredder and it's around the company before you can say "wireless."

I know it's annoying, but communication really is the single most essential business lubricant.

Rule No. 2: Listen Very Carefully

There's information not only in what is being written and said, but in how it's being said and the medium used to deliver the message. In politically charged environments, you also have to listen intently for what is being left unsaid. Many of those around you will extol the virtues of honest, open communication, but the fact is, most people are deathly afraid of plain talk. Incomprehensible levels of insecurity among even our most talented people have just about everyone too tongue-tied to

If your peers are playing politics, call them on it—in public if you have to.

speaking their minds. Petrified by the prospect of being bludgeoned by a sneer or stabbed to death by a frown on the right person's brow, they routinely skirt the real issues. This sham is brought about by the fear of being accountable on a strictly personal basis.

Within most IT organizations, bad news rarely flows uphill until it's too late, and for CIOs this can be a career-shortening problem.

Rule No. 3: Don't Put Up With It

Your best people are counting on you to clear away as many obstacles as possible to help them get their jobs done. The counterproductive, time-consuming, spirit-crushing sport called office politics is one of the things you are primarily responsible for keeping under control. If your peers are playing politics, then call them on it—in private if you can and in public if you have to. If you catch your subordinates in the act, fire them on the spot, and HR be damned.

If your boss is playing politics, don't get sucked in. If you can't stay out of the way, better to say the hell with it and just get off the island. **CIO**

Do you have a political horror story in your past? Anonymous wants to hear about it at confidential@cio.com. Anonymous has been a CIO at household-name companies for over 12 years.



B2B

**It's not a fashion.
It's a revolution.**

B2B is more than the latest craze, it's the new way to do business. Only eXcelon allows you to create a truly collaborative environment between you and your business partners. Making it possible to manage *all* your business content, not just transaction data. Integrating your business processes with those of your partners, into a single, unified workflow. Enabling all your partners to participate regardless of size, communication language or level of technical skill. Providing seamless connections to your existing enterprise systems. Leveraging partnerships is the promise of B2B. eXcelon makes it a reality. www.exceloncorp.com.

eXcelon™

B2B. As it was meant to be.™

eXcelon Corporation 25 Mall Road Burlington, MA 01803 USA 1-800-706-2509

Opinion Re:

-The Secret of E-Business Success
-Dual IT Strategies

E-Culture

BY ROD TRAVERS

THE BUSINESS WORLD is flooded with everything e-business. In plentiful supply are buzzwords, strategies, products, services and my personal favorite, veteran e-business practitioners. I am constantly amazed by what I hear from e-business experts who promise to solve nearly any business problem with an e-solution. The e-business gold rush is on, and everyone is scrambling for position. And although the utopian claims of creating an e-Shangri-la are mostly marketing fluff, e-business and its precepts have the potential to benefit practically every area of a company's operations.

In the momentum of the e-rush, one important area is routinely overlooked: company culture. Anyone who has worked for a company with a great culture knows the positive impact it has on that company's success. Likewise, companies with poor culture experience effects such as low morale, high turnover, low performance and weak bottom line. In order to make the shifts necessary to embrace e-business, companies must tend to their culture and ensure that it, too, is ready for major change. With any e-business initiative comes technology; however, technology is only an enabler. The people and the envi-



ronment have more to do with the adoption and success of e-business than technology does. So what steps can you take to evolve your company culture toward (pardon the new buzzword) an e-culture?

- **Eliminate silos.** To be successful, e-business requires that information flow freely within an organization. Designate business experts in each major functional area to facilitate the free flow of information and connect people and processes throughout the enterprise. Encourage your people to share information, ask for what they need and collaborate with coworkers outside their immediate surroundings.

- **Recognize that e-business is an inside-out proposition.** If your core processes are not predominantly real-time, online, integrated and interactive, then you cannot operate as a true e-business. Make sure your people understand this key point and are empowered and accountable for making it happen.

ILLUSTRATION BY BOB DALY

Your business needs it all:

local
long distance
international
voice
fax
data
high-speed business Internet access
e-commerce support
netsourcing
IP transport
bandwidth services

Here's the list of service providers
you will need to talk to:

VIATEL.

One integrated network that connects all of your locations and destinations. One advanced platform for delivery of every type of traffic and payload, with unmatched speed and reliability. One unified field and customer support organization. And, one source for bottom-line cost savings. One call, to Viatel. All Distance. All Services.™



- Remember that education and training are critical. Everyone in the organization must be introduced to basic e-business concepts. Attitudes are influenced by what people know, so arm employees with as much knowledge as you can. For those who are accountable in areas that interact directly with customers, more detailed training is needed.
- Instill a sense of urgency in your people. Customers now expect immediate quality service, whether it is in person, on the phone or on the Web. The sense of urgency required to deliver that level of service should help drive business decisions.
- Recognize that the Internet and the realities of e-business have permanently changed the barriers to competition. Viable competitors, unencumbered by legacy systems and outdated processes, can spring up almost overnight. Be proactive in adopting technology. Outsource if necessary.

Do these ideas sound familiar? Many of these suggestions

are similar to those you might consider when implementing any major improvement initiative. And that is what e-business really represents: an opportunity to substantially improve your service models and, in turn, streamline your operations.

In recent years there has been a proliferation of enterprise resource planning systems. Yet for all the promise these systems hold, many organizations have struggled with or abandoned their efforts to implement them. Why? In many cases the company culture wasn't geared to support the effort. Don't let that same thing hinder your e-business initiatives. Capitalize on them by looking past the technology and recognizing that culture and people are critical to unlocking the opportunities of e-business. **CIO**

Rod Travers is senior vice president of technology at the Robert E. Nolan Co., a Dallas-based management consulting company that serves the banking, health-care and insurance industries.

Evolve Your Architecture

BY JÜRGEN LAARTZ, ALEXANDER SCHERDIN,
DANTE CAFARELLI AND KLEMENS HJARTAR

AS MOST COMPANIES adjust to the realities of e-commerce they face a dual challenge to navigate in managing information technology. In either B2B or B2C ventures they must rapidly develop new IT systems to achieve specific commerce results and timetables. At the same time, their implementations of these systems must be flexible enough to accommodate significant, unforeseeable and inevitable changes both in the business and the technology.

These demands to build, operate and modify a Web-enabled business on Internet time and over time pose yet another set of challenges. As IT leaders create the new e-commerce architecture in incumbent organizations, they must weave their design quickly and seamlessly into existing legacy and channel systems of their corporation's brick-and-mortar businesses. In startups, IT builders typically need to swiftly integrate their systems with those of newly identified external partners.

This calls for CIOs to consider and apply a dual, or "bifocal," strategy. The goals of a bifocal strategy are, first, to help

a company outrace e-commerce rivals by focusing on basic functionality that appeals to customers and, second, to incorporate broad flexibility and scalability in IT systems for the long run. With this approach companies will be able to address both short-term and long-term architecture requirements as they move forward to integrate e-commerce activities from the start.

The bifocal strategy keeps the focus on speed at all times but in different ways. Speed through simplicity is key to capturing first-mover advantages in e-commerce, so the initial priority is to develop a fast-to-market IT solution. At the same time or with only a few months' delay, the company begins to design and build a second solution that is richer in product offering, typically more complex in architecture, linked into legacy and channel systems, and better able to adapt to rapid changes that inevitably arise in an e-commerce business. Once the second, more adaptable system is operating, the company can abandon many parts of the fast-to-market solution.

One fast-growing Internet business in Europe, LetsBuyIt.com, adopted this dual strategy in building what

has become a thriving online marketplace. The basic premise of the business is cobuying: attracting throngs of buyers for a single product by offering them preset price discounts that increase in relation to the number of buyers. By July 2000, some 730,000 customers were registered with the count rising daily by several hundred. These customers shopped among

Do you have an opinion you would like to express? Let Senior Editor Megan Santosus know at santosus@cio.com.



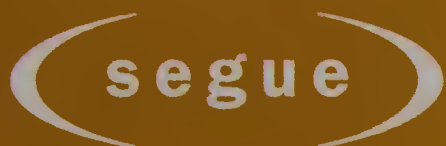
Access denied.

Insufficient resources. Stock market
unavailable this afternoon. Please
try tomorrow.

OK

Business would never let it happen. Neither should e-business.

www.seguel.com the e-business reliability experts



more than 50,000 products.

LetsBuyIt.com established its first online site for Sweden in April 1999 on a very simple e-commerce platform that ran on Windows NT and took about a month to develop. Half a year later it shifted to a more advanced platform running on Unix that was being constructed while the business was being launched. This advanced e-commerce product and its many customized extensions were written in Java. This second architecture contained multiple components that Jan-Erik Gustavsson, the company's chief technology officer, says were essential for executing a complex expansion across Europe.

This approach fully embraces the potential of the Web. The IT architecture is designed to place every aspect of supply-chain management onto the Internet, and link it to a global company's complete portfolio of products. The goal is to support a natural evolution of e-commerce architecture and to offer an open, marketplace-style connectivity to all customers. This enables a company to respond quickly and creatively as customers get more demanding.

In a more conventional but less effective strategy than the bifocal method, one large retailer focused its technology investments on islands of architecture, separately establishing call

centers and other functions required for e-commerce. The decision, however, proved shortsighted. The platform could not scale adequately as the business grew and could not be integrated into all vital legacy systems.

In two years the effort failed. Narrow, noncompetitive product offerings, limited availability of customer information, and obstacles to scalability and integration all contributed. The retailer, with no parallel effort underway to create a flexible and viable platform for the long term, had few options other than to pursue a joint venture. Its e-commerce effort then began anew, well behind the retailer's main competitors.

A runner disabled early in a race finds it difficult, if not impossible, to recover and perform at world-class levels. A bifocal strategy in e-commerce architecture helps a company compete successfully in its initial sprint onto the Internet as well as on the marathon course it must master to create its Web-enabled future. **CIO**

The authors are consultants in the business technology office of McKinsey & Co. Jürgen Laartz, a principal, and Alexander Scherdin, a consultant, are based in Germany; Dante Cafarelli is an associate principal in Italy; and Klemens Hjartar is a consultant in Denmark.

Introducing CIO's Online Mentor-Matching Service

Meet Your Match

Let us help you find a mentor or someone to coach

It's impossible to know all there is to know about being a successful IT executive. Neither a newcomer nor a 20-year veteran has all the answers to mastering one of the hardest jobs in today's organizations.

That's why there's a critical need for IT leadership mentoring and executive coaching. That need is especially great with a new generation of IT managers taking the reins as CIO and CTO. Meanwhile, veteran leaders can offer a treasure trove of hard-earned insights such as how to play the political game successfully and provide smart project leadership and the keys to motivating IT staff and managing user expectations.

Unfortunately, it's hard to find someone to work with. Even start-



ing the search can be a challenge. We can help. CIO's free mentor-matching service will pair IT managers eager to learn from a veteran's war stories and wisdom with seasoned executives who want to share their ideas and advise earnest, bright professionals. We provide the ground rules; you provide the small time commitment of one phone call or in-person interaction per month for a three-month trial period. Visit www.cio.com/forums/executive/mentors for more information and to enroll—because this job ain't getting any easier.

Dangerous eVolutionary.™

Deepak Abbhi
President and CEO
S e-technologies Inc.

**Deepak Abbhi knows how to
flatten the competition.**

**His company effortlessly
manages more than 500 consultants.
Working on systems integration
projects in five continents.**

Via the Net. Using Niku.

Thanks to eNiku for IT Consulting, it's a cinch for S e-technologies, Inc. to coordinate consultants' skill sets with customer requirements. To effectively share expertise among team members. To broadcast up-to-the-minute project status reports. And to turn a healthy profit—while maintaining their trademark pragmatic approach to problem-solving.

Niku represents a new generation of Internet-based enterprise application software designed to manage the business processes and leverage the intellectual capital in today's service-driven economy.

Learn more about Niku solutions for IT and management consulting, internal IT, legal and other professional services at **www.niku.com**, or call toll-free at 1-877-846-6458.

Internet Keyword: **Niku**

**Transforming
the Service
Economy**

NIKU™

Opinion | Sound Off

Taking Sides on Critical Issues

Computer Rage: Myth or Reality?

BY MARTHA HELLER

THERE IS A TECHNOLOGY-BASED scourge afoot...maybe.

It's not a virus, nor is it a denial-of-service attack. It's computer rage, and according to the latest reports, it's out to destroy the physical health, the emotional stability and, if left unchallenged, the economic strength of whatever population it strikes.

Security software vendor Symantec Corp., working with Britain's National Opinion Poll, recently found that when confronted with technical problems, more than 40 percent of British users surveyed have sworn at, kicked or otherwise abused their computers, monitors, and the most victimized of all computer components, their keyboards.

In similar surveys conducted last year, Marlborough, Mass.-based Concord Communications discovered that 83 percent of 150 U.S. respondents witnessed such attacks, and London international market research company MORI found that 40 percent of 1,250 British workers had watched as their colleagues leveled verbal and physical abuse at their computers.

Stress related to computer rage, the Symantec study claims, resulted in a loss of productivity for most respondents. Robert



Edelmann, clinical psychologist and author of *Interpersonal Conflicts at Work*, is worried. "Frustration with IT should be taken seriously as a modern malaise," he says. "It is affecting both our work and our home lives to the extent that computer rage is now much more prolific than road rage."

Is he joking? Is computer rage a serious problem or just something dreamed up by vendors like Symantec that happen to sell "preventative software" that they claim will make computer frustration a thing of the past? Have your users really exacted violence on their PCs? Share your stories of computer rage, and tell us what you think.

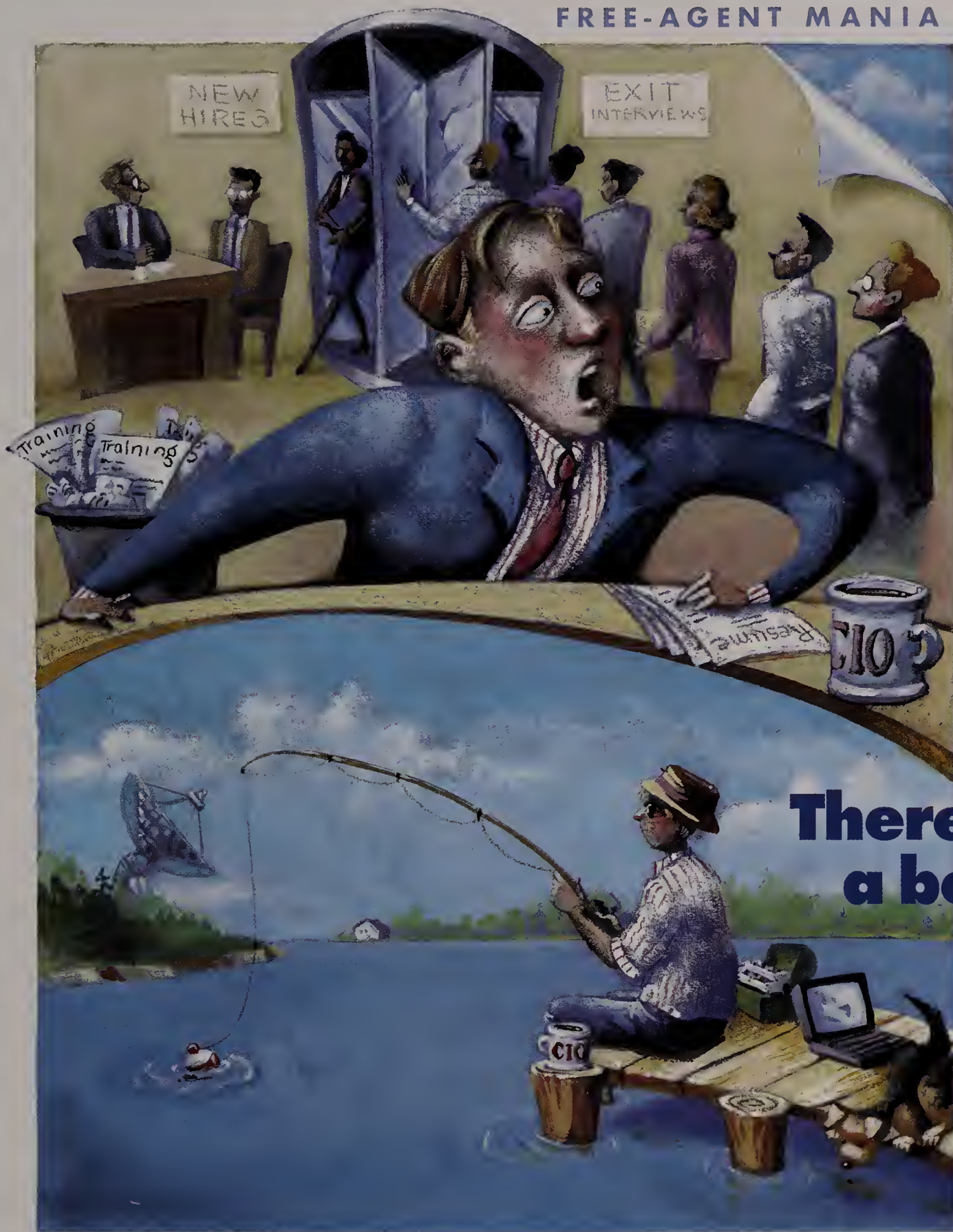
Senior Web Editor Martha Heller can be reached at mheller@cio.com.

WE HAVE TO REMEMBER (AND TRAIN EMPLOYEES) THAT, unlike human beings, computers are absolutely intolerant of

ILLUSTRATION BY DAVY LIU

FREE-AGENT MANIA

RELENTLESS E-HEADACHES



**There is
a better way.**

When you absolutely have to have a B+B site engineered to perfection,
or you've been thinking about outsourcing part of your application
development or maintenance...or, you simply need to augment
your staff—call us.

As a SEI-CMM Level 5 company, Satyam is the better way.

Delivering tomorrow's IT solutions today

Call 800.450.7605 or visit our website at www.satyam.com



even the slightest imperfection. There is much business and ego pressure to “get things right,” but since we flawed human beings are involved, there will be errors, no matter how high our IQs are.

It's important to keep our cool when these errors happen. We don't know what we don't know.

Steve Fitzgerald

*Senior Analyst
Federated Department Stores
Duluth, Ga.
sfitzge@aol.com*

COMPUTER RAGE? YOU BET! I'VE BEEN ON BOTH THE hardware and software sides of computer problems, and believe me, software problems can be the most frustrating problems imaginable. At least with hardware problems you can

Do you get computer rage?

Want to sound off on this or other topics? Join the ongoing debates at comment.cio.com.

get your hands on it, feel it, replace it (fix it or throw it out—your choice). But with software? Only too often you're stuck with a buggy piece of software that you have to live with or try to. The result? Computer rage! I've done my share of keyboard bashing (and head banging), too.

Richard D. Keith

*Engineering Systems Analyst
Medical Center at Bowling Green
Bowling Green, Ky.*

I AM, BY MOST ACCOUNTS, MILD MANNERED. IT TAKES A lot to get me flustered. As the father of two teenagers, I can honestly say I get the most angry, the most frustrated, the most annoyed, when my computer doesn't do what I want it to do, when I want it to.

I never swear, except when my computer crashes or otherwise interrupts the work that I am trying to complete. I have even smashed my fists on the keyboard more than once. But the truth is that the computer is simply in the way of what is really wrong: the software. The fix for computer rage is easy (though not to say fast or inexpensive for everyone): well-written, well-documented, bug-free software is the answer. Think how much more delightful work environments would be if Windows didn't offer those infamous “blue screens of death” so frequently. Or if all software written to run on Windows—and to a lesser

extent all operating systems—was based on clean, clear, open source code.

Apparently, that's too much to ask. Ultimately, software isn't written for the user, it's created to make the originator rich—and the user takes his chances (the dark side of laissez-faire).

Paul Maloy

*Web Development Manager
Salt Lake City
pmaaloy@usa.net*

RAGE IS REAL. AND IT'S EXPRESSED IN IRRATIONAL WAYS. In incidents I recall seeing, the persons reminded me of characters in a tragedy who cry out to the gods about justice or the meaning of what appears to be a senseless tragedy. In all the cases I have seen, it was the inability to cope with the realization that they have no useful product to show for the investment of their time.

Tim Lee

*Director, Special Projects
Archer Daniels Midland Co.
Decatur, Ill.
tim_lee@admworld.com*

NO HOPES, NO DISAPPOINTMENTS. IF YOU EXPECT BUGS, you will not be angered when they manifest themselves. But the long-term solution is obvious: clean, efficient code, which has been carefully checked, and bugs discovered by true beta testers (not the unofficial beta testers, the users of first-generation software). Quality above all, even if a software package does not have all conceivable functionality. If it does what it is capable of and does it consistently well, then I think many users will be satisfied.

Samuel Richman

*Systems Administrator
National Cancer Institute
Bethesda, Md.
richmans@mail.nih.gov*

I MUST SAY I LAUGHED WHEN I FIRST SAW THE TITLE TO THIS. I have never seen computer rage before. To me, if my PC doesn't work, it's usually my fault, as I am responsible for keeping 150 or more PCs working right all the time. I have, however, seen a video that's for laughs, about a guy trashing his PC because it wasn't working right.

Jim Reitzel

*Computer Specialist
U.S. Department of Energy Office of
Scientific and Technical Information
Oak Ridge, Tenn.*



Complex navigation is a guide on how to get lost.

www.inxight.com

See. Know. Do.[™]

© 2004 Inxight Software, Inc. All rights reserved. Inxight, the Inxight logo, and See. Know. Do. are trademarks of Inxight Software, Inc.

Opinion | From the Publisher

gbeach@cio.com

The Big Wait



Gary J. Beach

WORD WITHIN MICROSOFT is CEO Steve Ballmer is not happy with the sales of Windows 2000 Server and Advanced Server.

And after conferring with the Microsoft sales staff, he is going to take the Windows 2000 pitch over and around CIOs and IT professionals directly to your peers in sales, marketing, finance and the executive suite.

Not that this approach is new for Microsoft. Over a decade ago the company marketed final editions of MS-DOS and early releases of Windows to what it called “influential end users”—leading-edge users willing to load up their personal computers with an alternative to IBM’s OS/2. The end game was this: A critical mass of users would force the MIS department to adopt Microsoft’s products. And the strategy worked well.

For the Windows 2000 family of operating systems and application-dependent products, this strategy is misguided and will fail. Even if Microsoft gets business managers motivated to ask their CIOs, “Hey, why aren’t we using Windows 2000 yet?” empowered IT professionals will recite the following reasons as they send their comrades back to their Windows 95/98—or, increasingly, Mac—desktop environments:

1 Our company upgraded its desktop and server infrastructures in 1999 while preparing for Y2K. Money is allocated in the 2001 budget for the next round of upgrades.

2 We are waiting for new server machines based on powerful processors from Intel and AMD to take full advantage of the Windows 2000 platform. Probably a first half of 2001 occurrence, but it might be later.

3 We are waiting for a plethora of certified Windows 2000

applications to hit the market. Microsoft’s decision to raise the bar on certification for Windows 2000 was the right one. It’s just taking the applications longer. And applications drive operating system upgrades.

4 We are waiting to learn more about the Windows 2000 Datacenter edition slated for release this fall. Windows worked OK on the desktop and on low-end server platforms. Will Windows 2000 Datacenter scale to run an entire business?

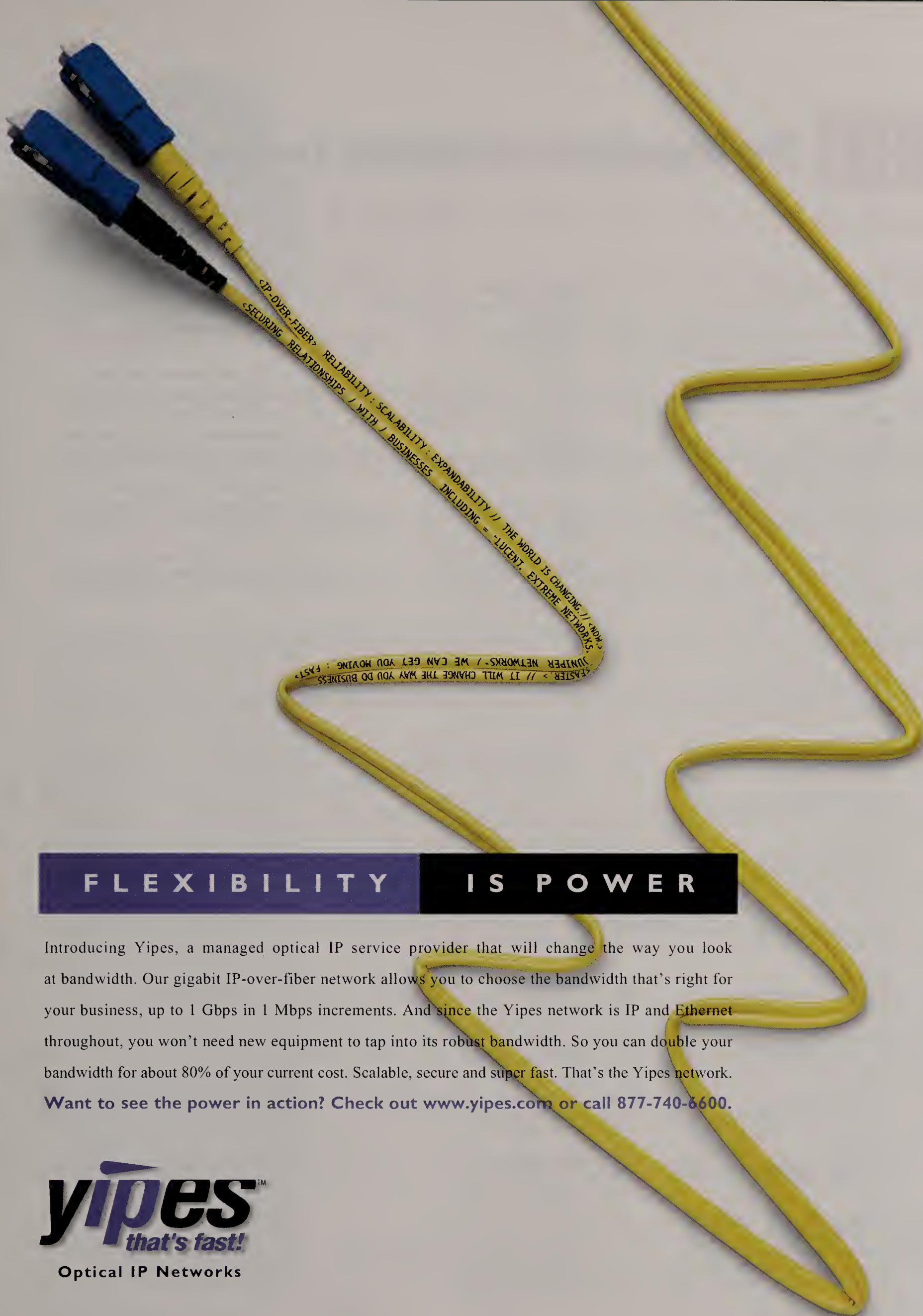
5 We are waiting to evaluate Microsoft’s direction and commitment to the software business. The Microsoft .NET initiative, announced earlier this year, seems to be transforming Microsoft into a services business. Some, even well-placed executives within Microsoft, are not completely confident this metamorphosis can work.

6 We are waiting to evaluate Microsoft’s new service venture with Andersen Consulting, called Avenade. An enterprise operating system needs to be up and running 24/7. Questions remain as to whether Avenade can provide this for us and service our cross-platform environment.

7 And lastly we are waiting to learn the final outcome of the Department of Justice trial. Will Microsoft and the DOJ settle? Will the business be broken up into operating system and application companies? What will it look like? Which company will retain the Microsoft name? How will products be supported? The list goes on....

The operative word in the above explanations is *wait*. CIOs are indeed waiting and weighing their options. Microsoft would be well-advised to work directly with CIOs in empowering them with answers to the above questions rather than grandstanding to their nontechnical peers.

The company’s growth and very survival depends on how well they do it.



FLEXIBILITY

IS POWER

Introducing Yipes, a managed optical IP service provider that will change the way you look at bandwidth. Our gigabit IP-over-fiber network allows you to choose the bandwidth that's right for your business, up to 1 Gbps in 1 Mbps increments. And since the Yipes network is IP and Ethernet throughout, you won't need new equipment to tap into its robust bandwidth. So you can double your bandwidth for about 80% of your current cost. Scalable, secure and super fast. That's the Yipes network.

Want to see the power in action? Check out www.yipes.com or call 877-740-6600.

yipesTM
that's fast!

Optical IP Networks



The Magazine for Information Executives

CIO SALES OFFICES

President & CEO Joseph L. Levy • 508 935-4601

Publisher Gary J. Beach • 508 935-4202

Executive VP Sales/Custom Publishing
Ellen Romanow • 508 935-4796

Sales Operations Associate Kim Harris

East Coast

Senior VP Sales/East

Michael J. Masters • 973 244-5500, ext. 21

VP/Business Development

Frank S. Genovese • 973 244-5500, ext. 19

Senior Regional Managers/Advertising Sales

Eileen P. Lobaugh • 973 244-5500, ext. 18

Kathy Powers • 973 244-5500, ext. 14

District Manager

Ellie Schwab • 973 244-5500, ext. 16

Account Executives

Joan Bonadeo • 973 244-5500, ext. 17

Sharon Kurcins, Gale Tedeschi

Office Manager

Marlene Levis • 973 244-5500, ext. 15

Advertising Sales Associate

Angela Fung • 973 244-5500, Fax 973 227-1565

Administrative Assistant Sharon Harrison

New England

Senior Regional Manager/Advertising Sales

Len Ganz • 508 935-4039

Account Executive

Dawn Cora • 508 935-4092, Fax 508 872-0618

Mid-Atlantic

Regional Manager/Advertising Sales

Louise Cupelli • 215 627-8114

Account Executive

Christine Lattore • 215 627-8114

Advertising Sales Associate

Maureen Welsh • 215 627-8114

South Central

Regional Director/Advertising Sales

Robert E. Sawdon • 512 306-9801, Fax 512 306-9805

North Central

Senior Regional Manager/Advertising Sales

Keith H. Kenner

Senior Sales Associates

Carol Gockenbach

Anne Swartz • 847 441-5005, Fax 847 441-5150

West Coast

Senior Regional Managers/Advertising Sales

James Barrett • 415 693-1995

Paula J. Connor • 415 693-5634

Senior Account Executive

Lucia Bravo • 415 693-5583

Advertising Sales Associate

Sarajane Robinson-Retondo

415 693-1993, Fax 415 398-4649

Southern California

Senior Regional Manager/Advertising Sales

Nancy A. Coy

Account Executive

Chris Bramel

Senior Sales Associate

Janis Wikander • 949 475-5579, Fax 949 475-5583

CONSUMER ADVERTISING SALES

Regional Manager/Consumer Ad Sales

Pauline Smith • 508 988-6821

LIST SERVICES

List Services Director

Kathryn A.W. Grayson • 508 935-4072

List Services Account Executive

Stephanie Roy • 508 935-4151

List Services Coordinator

Kim Cormican • 508 935-4152

CIO is published in the United States as well as in

Australia, CIO Australia

P.O. Box 295, St. Leonards, NSW 2065, Australia
61-2-9439-5133; www.idg.com.au

Canada, CIO Canada (monthly)

CIO Enterprise Canada (biweekly)

Laurentian Technomedia Inc., 55 Town Centre Ct.
Suite 302, Scarborough, M1P 4X4, Ontario, Canada
416-290-0240; www.lti.on.ca/cio

China, CEO & CIO China

China Computerworld Publishing
Building 3, 4th Floor
16 Cuiweizhongli, Wanshou Rd.
Beijing 10036, China
8610-6825-9416; www.ceocio.com.cn

India, CIO India

Technology Media Group Pvt. Ltd.
3540 HAL 2nd Stage
Indiranagar, Bangalore, India 560 038
91-80-521-0309/12

Japan, CIO Japan

3-4-5 Hongo Bunkyo-ku
Tokyo 113-0033 Japan
03-5800-2931; www.idg.co.jp

Korea, CIO Korea

39, Dangsang-Dong 1-Ga, Youngdeungpo-Gu
Seoul, 150-041, Korea
82-2-632-7561; www.cio.seoul.kr

New Zealand, CIO New Zealand

P.O. Box 6813, Wellesley St.
Auckland 1036, New Zealand
64-9-377-9902; www.idg.co.nz

Singapore, CIO ACEN/Hong-Kong

IDG Communications (s) Pte Ltd.
80 Marine Parade Road, #17-01A Parkway Parade
Singapore 449269
(65) 345-8383; www.idg.com.sg

ONLINE SERVICES

VP/Online Sales Lisa Brown • 508 935-4470

Online Account Executive

Michael McPhee • 508 935-4611

CUSTOM PUBLISHING

Director Mary Gregory

Senior Project Manager Nancy O'Connell

Project Managers Lisa Chaffin, Sally Ellison

Senior Production Editor Chris Brown

REPRINT SERVICES

RMS 717 399-1900, ext. 131; e-mail
jeffm@rmsreprints.com

For further sales information, visit
www.cio.com/marketing/salesoffices.html.

IDG is the world's leading IT media, research and exposition company. Founded in 1964, IDG had 1999 revenues of \$2.56 billion and has more than 12,000 employees worldwide. IDG offers the widest range of media options, which reach 90 million IT buyers in 80 countries representing 95 percent of worldwide IT spending. IDG's diverse product and services portfolio spans six key areas including print publishing, online publishing, expositions and conferences, market research, education and training, and global marketing services. More than 90 million people read one or more of IDG's 290 magazines and newspapers, including IDG's leading global brands—*Computerworld*, *PC World*, *Network World*, *Macworld*, *CIO* and the *Channel World* family of publications. IDG Books Worldwide is the fastest-growing computer book publisher in the world, with more than 700 titles in 38 languages. The "...For Dummies" series alone has more than 75 million copies in print. IDG offers online users the largest network of technology-specific websites around the world through IDG.net (www.idg.net), which comprises more than 250 targeted websites in 55 countries worldwide. International Data Corporation (IDC) is the world's leading provider of information technology data, analysis and consulting, with research centers in 42 countries and more than 575 research analysts worldwide. IDG World Expo is a leading producer of more than 168 globally branded conferences and expositions in 35 countries including E3 (Electronic Entertainment Expo), Macworld Expo, ComNet, Windows World Expo, ICE (Internet Commerce Expo), Agenda, DEMO and Spotlight. IDG's training subsidiary, ExecuTrain, is the world's largest computer training company, with more than 250 locations worldwide and 785 training courses. IDG Marketing Services helps industry-leading IT companies build international brand recognition by developing globally integrated marketing programs via IDG's print, online and exposition products worldwide. Further information about the company can be found at www.idg.com.



Our e-business portal allows Ricoh Canada to drive its top and bottom lines in ways its competition would **dearly love to copy.** It's called "my Ricoh" and, by reinventing relationships, it reduces the cost of acquiring and retaining customers. Power is being placed right where it belongs, in the purchaser's hands. Processes are being streamlined, points of contact eliminated. Internal best practices are being shared so key business issues can be resolved more quickly. Revenue? It's headed up. Administrative costs? Down. These are the results Ricoh® Canada was seeking from its original ERP investment. Its expenditure for the TopTier® Portal was peanuts by comparison. But it's making that original investment pay off handsomely. What can we do for you?
800-360-3328/www.toptier.com

TopTier provides leading companies with e-business portals that are surprisingly easy to deploy and shockingly easy to use. No new code is required. Also no training. Point. Click. Drag. Drop. Anyone who can execute these four simple steps knows how to use TopTier to swiftly access, link and relate data – even data from disparate sources – in an endless variety of ways.



e-business like you've never seen it before.

Board of Influence

There isn't a single CIO on the editorial staff of *CIO*, and we don't employ any high-priced IT or business consultants. Nearly all of the ideas and articles we develop come from knowing and interacting with our readers. Our mission is to get inside their heads to learn what they need to know. Some of these readers have let us spend a lot of time in their heads by agreeing to serve on our Editorial Advisory Board. We thank them for their generosity and insight into the world of IT.

—The Editors

Editorial Advisers

DOUG BARKER

VP and CIO, The Nature Conservancy

ROBERT BARRETT

VP of IT, PRI Automation

WAYNE D. BENNETT

Partner, Bingham Dana

BRIAN BERTLIN

VP and CIO, Washington Group International

JOHN B.W. CROSS

Executive VP, AppNet

THOMAS H. DAVENPORT

Director, Andersen Consulting Institute for Strategic Change

MICHAEL EARL

Professor of Information Management and Deputy Principal, London Business School

DAVID V. EVANS

Senior VP and CIO, J.C. Penney Co.

JOHN GLASER

VP and CIO, Partners HealthCare System

LEONARD G. GOLDSTEIN

CIO, IntraLinks

JERRY GREGOIRE

Former CIO, Dell Computer Corp.

KEN HARRIS

Senior VP and CIO, The Gap

SCOTT HEINTZEMAN

VP of Knowledge Technologies, Carlson Hospitality Corp.

CHRIS HOENIG

President and CEO, Exolve

C. LEE JONES

President, AmericasDoctor.com

SUSAN S. KOZIK

CIO and VP of Corporate Centers, Lucent Technologies

CHUCK LYBROOK

Executive Director, The Information Management Forum

BERNARD (BUD) MATHAISEL

Corporate VP and CIO, Solectron Corp.

ALVIN PESACHOWITZ

CIO, U.S. EPA

FRANK POLLARD

Senior VP and CIO, Allstate Insurance Co.

LARAINÉ RODGERS

VP, Emerald Solutions

HARVEY SHREDNICK

Professor and Director, MBA/MSIM Dual Degree Program
Arizona State University

PETER SOLVIK

Senior VP and CIO, Cisco Systems

RICHARD W. SWANBORG JR.

President, ICEX

JAMES F. SUTTER

Senior Partner, The Peer Consulting Group

ARTHUR G. TISI

CEO and CTO, @Thought Technologies

PATRICIA WALLINGTON

President, CIO Associates

JOYCE WRENN

Principal, J.M. Wrenn LLC

JUSTIN YAROS

Senior VP and CIO, Twentieth Century Fox

CIO Reporter's Notebook

Speaking with Raymond S. Causey, the CIO of San Diego-based Mail Boxes Etc., is a challenge. The first thing you deal with is noise. Causey's office is located along one of the primary flight paths for Miramar Naval Air Station. Yes, Maverick-lovers, that's the fighter jock school made famous in the movie *Top Gun*. With F-18 fighters screaming overhead every few minutes, a conversation with Causey is punctuated with pauses.



Even so, it's still hard to keep up with Causey as he excitedly blazes through a conversation about the company's efforts to link its 3,400 U.S. franchises through a satellite network and outfit itself with a new customer relationship management system. Causey and his team are kicking into high gear to get as much of the system in place as possible before the Christmas-mailing rush this year. *CIO* will keep tabs on his team's progress on our website (www.cio.com) as the holidays approach.

A week after my first conversation with Causey, I was weaving my way through Boston traffic (being a land-based *Top Gun* of sorts) and listening to the radio. A commercial carried a familiar voice, Ray Causey, talking excitedly about his company's use of Lotus Notes. I figured he couldn't have recorded that spot in his office. There's just too much happening around there to get 30 seconds of peace and quiet.

—Stewart Deck

Perhaps the first time a remake is actually better than the original.



Introducing the newly designed high-performance Jaz® 2GB drive.

Lightning-Fast Speed	The Jaz® 2GB drive speeds up transfer rates to 8MBps.
Capacity To Do More	2GB of space lets you store up to 2,000 photos (640x480 pixels), 3.2 hours of CD-quality audio, or 40 minutes of compressed video.
Software Solutions	A complete software suite featuring iomega's exclusive Quik Sync software which automatically backs up your files without interrupting your work.
Complete Compatibility	The latest Jaz drive is available with USB and FireWire connectivity options. And it's compatible with Mac® OS8, OS9, and Windows® 2000. Plus, the Jaz 2GB drive works with both Jaz 2GB and 1GB disks. With over 2.7 million Jaz drives shipped, you can get your work done almost anywhere.



Copyright © 2000 iomega Corporation. All rights reserved. iomega, the stylized "i" logo, and Jaz are either registered trademarks or trademarks of iomega Corporation. Mac is a registered trademark of Apple Corporation and Windows is a registered trademark of Microsoft Corporation. All other trademarks are properties of their respective owners.

See your local reseller or visit: www.iomega.com

Index of Companies and Advertisers

Page numbers refer to the first page of the article(s) in which the company is mentioned. This index is provided as a service to readers. The publisher does not assume any liability for errors or omissions.

Company Index

1-800-flowers.com Inc.	108	Excite	108	netLibrary Inc.	114
Adobe Systems Inc.	114	Fair Measures Corp.	205	NetScaler Inc.	248
Advanced Business Integrators Inc.	36	Family Dollar Stores Inc.	82	Netscape	144
Agency.com	214	Fatbrain.com Inc.	114	NuvoMedia Inc.	114
Amacom Technologies Ltd.	32	Flowers by Louis Hody	108	Oracle Corp.	82, 108, 262
Amazon.com Inc.	108, 114	Ford Motor Co.	58	Patricia Seybold Group Inc.	174
America Online Inc.	108	Forrester Research Inc.	114	PeanutPress.com Inc.	114
American Express Co.	94	FreeMarkets Inc.	58	PK Interactive	36
American Floral Services Inc.	108	FTD Inc.	108	Priceline.com	262
AMR Research Inc.	174	Games2Train.com	36	PricewaterhouseCoopers	82
Andersen Consulting	114	Gartner Group	68	Procom Technology Inc.	248
AppWorx Corp.	82	Gemstar International Group Ltd.	114	Random House Inc.	114
Arthur Andersen Consulting	144	General DataComm Industries Inc.	94	RealNetworks Inc.	94
AT&T Corp.	108	General Electric Co.	58, 94	Retek Inc.	82
Baan Co. NV	82, 198	General Motors Corp.	58	Rohde & Schwarz	94
Bank of America Corp.	94, 205	Glassbook Inc.	114	Saga International Holidays Ltd.	205
Barnes & Noble Inc.	114	Gomez Advisors Inc.	108	SAP America Inc.	82
Becton, Dickinson and Co.	214	HarperCollins Publishers	114	Scholastic Inc.	114
Berrett-Koehler Publishers Inc.	32	Harvard Business School Press	32	Sears, Roebuck & Co.	58
Binary Research Inc.	205	Herman Miller Inc.	198	Semeron Corp.	130
Blue Silicon	248	Home Depot Inc., The	32	SeraNova Inc.	94
Broadbeam Corp.	248	Houghton Mifflin Co.	114	Siemens Power Transmission and Distribution Inc.	82
Carrefour	58	Humana Inc.	94	Simon & Schuster Inc.	114
Catalyst International Inc.	82	i2 Technologies Inc.	58	Smith, Helms, Mulliss & Moore LLP	205
CBS Worldwide Inc.	262	IBM Corp.	94, 108	Snap	108
Chase Manhattan Corp., The	130	Inktomi Corp.	144	SoftBook Press Inc.	114
Chemdex Corp.	58	Instill Corp.	58	SoftLock.com Inc.	114
Cisco Systems Inc.	108	Interactive Movie Picture Corp.	36	Songbird Hearing Inc.	36
Colfax Corp.	205	International Data Corp.	144	Spectra Logic Corp.	248
Concord Communications Inc.	274	Internet Technologies Group Inc.	108	SRA Electronics	205
Content Technologies Inc.	205	iUniverse.com	114	Staples Inc.	130
Crossworlds Software Inc.	82	Jackson Lewis Schnitzler & Krupman	36	StratigIM	94
DaimlerChrysler AG	58	John Wiley & Sons Inc.	114	Symantec Corp.	274
Dell Computer Corp.	36	Jordan Evans Group	62	Syntel Inc.	94
Delphi Automotive Systems Corp.	82	Kanbay Inc.	94	Sysco Corp.	58
DoveBid Inc.	58	KFC	32	Talisma Corp.	94
DuPont & Co.	58	Kmart Corp.	58	Tally Systems Corp.	205
Dynaptics Corp.	248	KPMG Consulting	214	Target Corp.	94
Eastman Kodak Co.	82	Kraft Foods Inc.	58	Tektronix Inc.	94
ebizQ.net	82	Lawson Software	108	Teleflora	108
Ebrary.com	114	LiquidPrice.com	94	Tibco Software Inc.	248
Election.com Inc.	36	Lucent Technologies Inc.	108	Time Warner Trade Publishing	114
Elron Software Inc.	205	Made2Manage Systems Inc.	130	Vanessa's Flowers	108
eSkye.com Inc.	58	Mail Boxes Etc.	174	Vault.com Inc.	205
eTour.com	214	Management Recruiters International Inc. ..	214	Versaware Inc.	114
		Manugistics Inc.	58	Wal-Mart Stores Inc.	58
		Marriott International Inc.	32	Warner Electric	205
		META Group Inc.	94, 248	Westell Technologies Inc.	248
		Microsoft Corp.	108, 114, 278	Winston Flowers	108
		MightyWords.com Inc.	114	Wipro Corp.	94
		Mikron Industries	130	Xelus Inc.	36
		MORI Group	274	Xpedior Inc.	6, 130
		Motherwear	32	Yahoo Inc.	108, 144, 214, 248
		National Information Consortium	144	Zefer Corp.	214
		National Wine and Spirits Inc.	58		

© 2007 SkillsVillage.com, Inc.

In the future — Evolution will continue to change the face of the planet.
Darwinists will point to the workplace as proof.

You can't hide from change. But you can prepare for it. Embrace it even. That's where we come in. With a network of skilled professionals who aren't just on the cutting edge, they're defining it. With powerful resource management tools, including a unique contractor rating system. And with revolutionary procurement technology and services that integrate seamlessly into your existing infrastructure. All designed to help you manage the emerging workforce. Before it starts to manage you.

**SkillsVillage.com™**

A new force at work.

Advertiser Index

Acer America	219	JD Edwards	24
Account4.com	61	Kana Communications	80
ActionPoint Inc.	237	Kintana	63
Acuent Inc.	141	Kyocera-Mita America Inc.	41
Advanced Micro Devices	106	Liebert Corp.	133, 225
Agilera	4	LipStream	155
Alcatel	79	Lotus Development Corp.	47
Allaire Corp.	42	Managing Automation	69
Amdahl Corp.	177	Mapics Inc.	147
American Power Conversion	161	Maryville Technologies	231
Ariba Technologies	12	Mobile Commerce Conference and Expo, The	287
Art Technology	105	neolT.com	217
Autonomy Inc.	235	NetSolve	137
BMC Software	211	Network Engines	159
Best Power Technology	213	Networld+Interop	97
Bow Street Software	239	Niku	273
bTrade.com	111	Novell Inc.	163
Cerebellum Software	85	One Call Internet	113
Changepoint Corp.	119	Onyx Software	179
Chordiant Software	39	Oracle Corp.	15
Cisco Systems Inc.	50	Orderfusion	75
Citrix Systems Inc.	C3	Osprey Systems	253
Clarkston	55	Peoplesoft Inc.	45, 249, 251
Commerce One	243	Powerware Corp.	72
Computer Associates Intl. Inc.	7, C4	PricewaterhouseCoopers	149
Concord Communications	71	Princeton.com	191
CXO Media Inc.	33, 128A, 193	PSINet Inc.	192A
Cylink Corp.	263	Quantum Corp.	16, 92
Data General Corp.	123	Research in Motion	66
Databid.com	209	Samsung	49
Datachannel Inc.	241	SAP	117
Dell Computer Corp.	C2, 207	SAS	37, 223
Digex	221	Satyam	275
DigitalThink	135	Savvis Communications	185, 187
Documentum Inc.	203	Segue Software	271
EC Outlook.com Inc.	91	Selectica	65
eJiva	151	SGI	59
EMC Corp.	173	Sitara Networks	125
eOnline	29	SkillsVillage.com	285
Epresence	197	Sprint	261
Ernst & Young LLP	19	StorageNetworks Inc.	56
Evolve Software	167	Sungard Recovery Services	229
eXcelon Corp.	267	Symantec Corp.	142
FirstWorld.com	227	Telcordia Technologies	127
Guardent	201	Telseon	195
Hummingbird Communications	23	Time Vision	99
IBM Corp.	30, 169, 171	Tivoli Systems	103
IBM/Siebel	259	Tonic	20
Ikon Office Solution	89	Top Tier	281
Infinium	245	Toshiba America Inc.	8, 189
Informatica Corp.	265	Unisys Corp.	27
Information Builders Inc.	181	UUNET	53
Informix Software Inc.	255	Veritas Software	11
Intentia	139	Viatel	269
Interliant	77	ViryaNet	121
Intermedia	2	Vitria	87
International Data Corp.	257	Vyou.com	34
Intira Corp.	32A	Walker Interactive	101
Invensys	233	WebEx	247
InvoiceLink	153	Wireless	96A
Inxight	277	Women in Technology	256A
Iomega	283	Yipes	279

Editorial, Advertising and Business

Offices: 492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208, (508) 872-0080.

Postal Information: *CIO* (ISSN 0894-9301) is published semimonthly; and as a combined issue December 15/January 1 by CXO Media Inc., 492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208. Periodicals postage paid at Framingham, Mass., and at additional mailing offices.

Reprints: Copyright 2000 by CXO Media Inc. All rights reserved. Reproduction of material appearing in *CIO* is forbidden without written permission. Send all reprint requests to Permissions Department, *CIO*, 492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208.

Photocopy Rights: Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by *CIO* for users through the Copyright Clearance Center (CCC), provided that the base fee of \$3.00 per copy of the article, plus \$.50 per page is paid directly to Copyright Clearance Center, 27 Congress Street, Salem, Massachusetts 01970. Please specify: ISSN 0894-9301. Permission to photocopy does not extend to contributed articles followed by this symbol: ‡.

Subscriptions: Address inquiries to *CIO*, 492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208; 800 788-4605. *CIO* is free to qualified information executives. To all others the one-year basic rate is \$94 for U.S. and Canada, \$175 to foreign countries (payable in U.S. funds only). The single copy price is \$9. Please allow 4 to 6 weeks for new subscriptions to begin.

Change of Address: Please fax a copy of current subscription label along with new address to 508 879-7899. Allow 4 to 6 weeks for change to take effect.

Postmaster: Send change of address to *CIO*, P.O. Box 489, Northbrook, Illinois 60065-9816. Printed in the U.S.A.

mobile commerce

see where it's all going

mobile commerce conference and expo december 12-14, 2000

jacob k. javits convention center, nyc www.mccexpo.com

co-located with eBusiness conference and expo

MOBILE COMMERCE CONFERENCE AND EXPO the only event embracing the customer economy that provides wireless, e-commerce solutions for key business sectors such as retail, banking/finance, entertainment, travel and emerging e-marketers.

UNWIRED TECHNOLOGY including the latest in wireless devices such as cellular phones, PDAs, pagers, scanners, handheld computers and notebooks, all with internet browsers and e-mail capabilities. Vertical and broad-based technologies including: e-commerce applications, software and middle-ware providers, wireless components, voice recognition software, location software, user interface designers, network carriers, operating system vendors, etc. Top wireless vendors such as wireless service providers, industry advertising agencies and consulting firms.

INNOVATIVE KEYNOTERS



Dr. Pehong Chen
President, Chairman of the Board and CEO
BroadVision, Inc.



Dr. Ronjon Nag
CEO
Cellmania.com

A DYNAMIC CONFERENCE designed in cooperation with the editors of *InformationWeek*, *InternetWeek*, *tele.com*, *Network Computing* and *Mobile Computing* will inspire and educate the technological gurus and business developers who will first roll out the new mobile commerce applications. With cutting-edge sessions from our Technology and Business Tracks, you will learn about a range of topics from "Shopping Without Wires" to "Content Management Architecture and Design."

REGISTER TODAY or for more information, visit www.mccexpo.com or call 1-800-950-1314 ext. 3045 in the U.S. (212-615-3045 direct).

Use source code MC2 when registering.



Sponsored by

BROADVISION

cellmania.com
Connecting the Wireless Generation™

Conferences Sponsored by:

INFORMATIONWEEK

INTERNETWEEK

Mobile Computing

Network Computing

tele.com

Time Piece

Wire Report

ANCIENT EGYPTIANS used the ankh sign to represent copper—the same hieroglyph that for them also represented eternal life. This may have been an early example of the homonym, but it's more likely that the Egyptians recognized the metal's enduring qualities. After 10,000 years of use by humans, copper is still being produced at a rate of more than 5 million tons a year.

Wire is one of the primary modern uses for the metal. In the early part of the 19th century, inventors found that its conductiv-

ity, combined with its ability to resist corrosion, made copper wire the ideal medium for distributing electricity from a power source. In 1877, it replaced iron wire in the telegraph system, and soon after that it became an integral part of the growing network of telephone systems and electrical power grids in the United States.

Copper wire's popularity occasionally has been threatened by relative newcom-

ers, such as aluminum wire, which made a significant but ill-advised foray into houses built in the late 1960s and early '70s, and fiber-optic cable, which has wound its way into telecommunications. Despite competition from these upstarts, copper wire is unlikely to be coiled up for good: Currently, copper accounts for about 78 percent of the United States' insulated wire and cable markets. —Sara Shay



They're saying now you can deliver applications at digital speed.

That's how the world's most successful companies describe the exhilarating power of Citrix® MetaFrame™ for Microsoft® Windows® 2000 Servers. Lightning-fast agility to deploy business-critical applications to any device over any connection. Wireless to Web. And, with our

CITRIX®



**Digital
Independence™**

new Web application portal product, Citrix NFuse™, leveraging the Web just got faster. And easier. With Citrix NFuse you simply integrate and publish interactive applications into any standard Web browser with point-and-click ease. We call it Digital Independence™. You'll call it rocket fuel for your enterprise applications. See why IT managers everywhere are already using Citrix MetaFrame and Citrix NFuse at **www.citrix.com/rocket** or **877.669.0235**.

Now everything computes.™

CITRIX®

When It Comes To Security, Only eTrust Can Protect You Like This.



Security is the number one concern of every IT professional. The good news is that there's a proven solution you can trust.

Without Bullet-Proof Security, Successful eBusiness Is Impossible

The only thing bigger than the opportunity that comes with putting your business on the Web is all the risk that goes with it.

Undetected attacks can strike at any time, from anywhere, in a variety of forms. Most sites can't even track every attempt. And new threats are developed every day, all over the world.

Without the right protection, eCompanies risk losing everything: data, customers, revenue, and more.

A Simple Solution To Your Most Complicated Challenge

Online business through eCommerce, corporate intranets, partner-to-partner transactions on extranets and websites, all need to be secured. Protecting the integrity and availability of intranet information is critical to all organizations.

Unfortunately, in the race to become Web-enabled, security has taken a back seat. IT managers often give themselves a false sense of security with a standalone or partial security solution. They forget that eCompanies need an integrated and comprehensive security solution that provides best-of-breed functionality.

eTrust Enables eBusiness

eTrust™ provides all the security solutions an eBusiness needs:

COMPREHENSIVE — From the browser to the mainframe, ensuring complete security in today's highly complex environments.

BEST-OF-BREED — eTrust solutions offer best-of-breed functionality across the board.

INTEGRATED — All eTrust solutions are designed and built to work together seamlessly.

EASY — eTrust solutions are easy to use, deploy, and administer, ensuring any environment is secured quickly and correctly.

MISSION-CRITICAL — eTrust solutions offer the scalability, depth, and robustness fast-growing and successful eBusinesses need.

eTrust Is Open And Extensible

eTrust allows you to leverage existing investments in security solutions — you will never have to start over or convert anything.

And eTrust can be implemented one function at a time or all at once — it's your choice.

And since eTrust is built on the Unicenter TNG® Framework™, it lets you snap-in other eBusiness management solutions as you grow and your needs change. eTrust is built on a standards-based, open infrastructure, so it's always easy to plug in any other standards-compliant products or solutions.



eTrust Is Trustworthy

eTrust is not only backed by the world's leading security software company,* it is also complemented by a complete set of outcome-based service offerings. CA Services™ stands ready to make sure your implementation is fast and trouble-free.

If your company is making the difficult transition to an eBusiness, you owe it to yourself to find out more about the security solution more eBusinesses trust.

**For more information,
call 1-800-377-5327, or visit
www.ca.com/solutions/enterprise/etrust/**

eTrust Security Suite

- Access Control
- Administration
- Single Sign-On
- Firewall
- Content Inspection
- Intrusion Detection
- Policy Compliance
- Audit
- Virtual Private Network
- Encryption
- Directory
- OCSPPro
- Anti-Virus

**COMPUTER®
ASSOCIATES**
Software superior by design.

eTrust™

Backed By The #1 Security Software Company

Assess

Manage

Protect

Detect

Enable